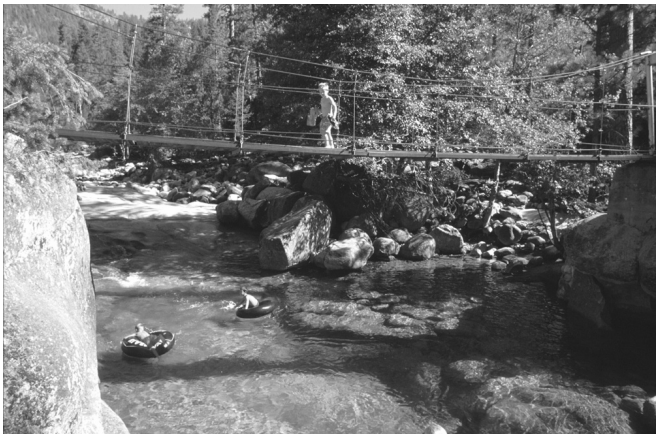
Chapter II: User Capacity Management Program

Introduction

The National Park Service administers Yosemite National Park under a series of statutory authorities passed in the late 1800s and early 1900s that include the National Park Service Organic Act of 1916. These authorities mandate that the National Park Service protect and preserve the park's natural and cultural resources while providing for the public's enjoyment of the resources "in such a means as will leave them unimpaired for the enjoyment of future generations." The mission of the National Park Service calls for allowing public use of parks, but not to the detriment of the values that make them unique. Similarly, the Wild and Scenic Rivers Act Section 10(a) calls for protection and enhancement of river values without limiting other uses to the extent that such uses do not adversely impact the values for which the river was designated. Moreover, since Yosemite National Park is one of the premier outdoor recreation areas in the world, recreation was identified as an Outstandingly Remarkable Value contributing to the 1987 designation of the Merced as a Wild and Scenic River.

The Merced River Plan adopted in 2000 identified the Visitor Experience and Resource Protection (VERP) framework as the National Park Service's preferred method for addressing user capacity. The Merced River Plan did not, however, identify specific measurable indicators and standards, and stated that it would take approximately 5 years for a VERP program to be fully implemented.



Swinging Bridge over the South Fork of the Merced River, Wawona. (NPS photo)

The Ninth Circuit Court of Appeals directed the National Park Service to revise the Merced River Plan to address user capacity and to specifically set limits on use that are consistent with protection and enhancement of the river's Outstandingly Remarkable Values. User capacity can be addressed in a number of ways, as noted in many academic studies and by the Court in their October 2003 ruling. The Court specifically noted that user capacity can be addressed "*by setting limits on the specific number of visitors, by monitoring and maintaining environmental and experiential criteria under the VERP framework, or through some other method.*" The Court further stated that it did " *not read §1274(d)(1) to require that the administering agency advance one particular approach to visitor capacity in all circumstances (e.g., a head count of all entrants to Yosemite)*."

This chapter discusses what user capacity is, the history of user capacity management on public lands, and the various ways to address user capacity. It also describes the existing Yosemite National Park User Capacity Management Program, as well as components of the VERP program.

VERP was developed by the National Park Service to address visitor capacity[1] for park units in compliance with National Park Service regulations. VERP is becoming the standard planning tool to address user capacity mandates and an effective means for addressing user capacity within the boundaries of Wild and Scenic River corridors.

What is User Capacity?

User capacity[2] can be defined in a number of ways, as evidenced by the various quotes below:

"*…Based on the plain meaning, we do not read [the Wild and Scenic Rivers Act] to require that the administering agency advance one particular approach to visitor capacity in all circumstances (e.g., a head count of all entrants to Yosemite)…Thus we interpret [Wild and Scenic Rivers Act's] instruction that a Comprehensive Management Plan (CMP) must 'address user capacities' to require only that the CMP contain specific measurable limits on use…"*
Ninth Circuit Court of Appeals Opinion, October 2003

"…kinds and amounts of public use which the river area can sustain without impact to the Outstandingly Remarkable Values…"
Secretarial Guidelines for Wild and Scenic Rivers (NPS et al. 1982)

"*…the quantity and mixture of recreation and other public use which can be permitted without adverse impact on the resource values of the river…"*
Secretarial Guidelines for Wild and Scenic Rivers (NPS et al. 1982)

"…a prescribed number and type of people (demand), that an area will accommodate (supply), given the desired biophysical/cultural resources, visitor experiences, and management program…"
Congress on Recreation and Resource Capacity (Lundquist and Haas 1999)

"…the supply or prescribed number, of appropriate visitor opportunities that will be accommodated in an area…"
Federal Interagency Task Force on Visitor Capacity on Public Lands (Haas 2002)

"…the types and levels of visitor use that can be accommodated while sustaining the desired resource and social conditions that complement the purpose of the park units and their management objectives…"
Visitor Experience and Resource Protection Handbook (NPS 1997)

"…the type and level of visitor use that can be accommodated while sustaining the desired resource and visitor experience conditions in the park…"
National Park Service Management Policies and Director's Orders (NPS 2001)

Although many may think of a capacity as a number of people in a given area, the concept is much more complex. Research over the years has shown that user capacity cannot be measured simply as a number of people, because the potential for impacts is related not just to the number of people, but to the types of activities people engage in, where they go, what kinds of natural and

[1] Although most park plans deal specifically with "visitor capacities," the Wild and Scenic Rivers Act refers more generally to "user capacity," which is inclusive of other non-recreation uses of the area, such as employee housing and work stations.

[2] User capacity is also referred to as "carrying capacity" in some recreation management studies.

cultural resources are in the area, and the way the area is managed (Marion 1998, Cole and Stankey 1997). The concept of user capacity relates to the level of use (type and amount) that an area can withstand without having an unacceptable impact on the area's values. These values are not just limited to the cultural and natural resources, but include the quality of the visitor experience and other social factors. In the Merced River corridor, relevant visitor experience and social goals are expressed through the recreational Outstandingly Remarkable Values for the river. The goals of the National Park Service and the Wild and Scenic Rivers Act both allow for public use and enjoyment of the Merced River corridor at levels that protect the natural and cultural values for which the river was deemed worthy of protection. These values include the Outstandingly Remarkable Values of the Merced Wild and Scenic River. Therefore, the VERP Handbook's definition of user capacity (NPS 1997q) is consistent with the direction of the Wild and Scenic Rivers Act and the 1982 Secretarial Guidelines and forms the basis of the user capacity discussion in this document.

Background

How much use should be allowed on public lands has been an issue since public lands were first set aside for protection and enjoyment. In the past, the question of how much public use is appropriate in a national park has been framed in terms of what is known as the visitor *carrying capacity*. The concept originated in the 1930s as a way to measure the amount of livestock grazing possible within a given area of land. This was expressed as a set number of animals that the land could support. In contrast, when the focus is on preserving the integrity of whole ecological systems and providing visitor enjoyment and education—as is the case in national parks—the situation is more complex. In national parks, user capacity is defined as the types and levels of use that can be accommodated while maintaining social and resource conditions consistent with the purposes of the park and its mission.

Most forest and park lands were set aside based on a desire to protect nationally significant natural and cultural resources. Federal land management agencies (which include the National Park Service, U.S. Forest Service, Bureau of Land Management, and U.S. Fish and Wildlife Service) have the responsibility for protecting these resources on public lands, while allowing for the public's use and enjoyment of them. Each agency must find a way to balance public use and resource protection. While this goal and the user capacity management methods in use may be similar, each agency has a different mission and thus each adjusts the user capacity management methods to better reflect that mission.

Federal agencies are presented with the challenge of providing for visitor use, which inevitably affects resource conditions at some level, regardless of the intent of the visitors and the management actions taken by the agencies (Marion 1998, Leung and Marion 2000). Since accommodating visitor use is an important component of public land management, some level of impact must be accepted, and the public land management agency must determine what level of impact is acceptable. Public land management agencies are mandated to protect the resources that were recognized for protection and, at the same time, to accommodate the visitor demand generated by those very resources (Marion 1998, McCool and Stankey 1999, Cole and Stankey 1997).

Over the last 40 years, substantial research has been conducted on carrying capacity methods (henceforth referred to as *user capacity*) and their implementation. User capacity on federal lands came to the forefront of public land planning in the 1970s. The 1976 National Forest

Management Act and the 1978 National Parks and Recreation Act each called for public land planning efforts to address user capacities in order to ensure adequate protection of the natural and cultural resources and the quality of the visitor experience in these areas.

Several user capacity management approaches have been developed that are widely used throughout the United States and Canada, including Limits of Acceptable Change (LAC), Recreation Opportunity Spectrum (ROS), and Visitor Impact Management System (VIMS). The National Park Service has adopted a method in many of its park units that best fits the needs of its mission—the Visitor Experience and Resource Protection (VERP) framework. Although developed specifically to address the mission of the National Park Service, VERP shares a basic framework with these other user capacity management approaches (Nilsen and Taylor 1997).

User Capacity Assumptions

Different agencies use different means for addressing user capacity, and there are basic assumptions that underlie all of these efforts. These assumptions include the following:

- Allowing any amount of use is likely to have some impact on resources (Cole and Stankey 1997, Marion 1998, Stankey 1999, Leung and Marion 2000).
- Impacts on resources are not directly related to the number of users in an area. Agency managers must examine the relationship between visitor use patterns and impacts in order to isolate the most significant cause of the problem (Graefe 1990, Leung and Marion 2000).
- The impact from use results not just from the number of users, but from the types of uses, the dispersion of users, the season of use, the resource values in the area, and the management framework, including the facilities provided (Marion 1998, Cole et al 2005).
- The user capacity of any given area can and will change over time due to natural events, changes in use characteristics (types of activities, size of groups, etc.), changes in managerial factors (development of facilities, restrictions implemented, or other management actions), changes in technology, and new scientific information gathered through monitoring and evaluation of resource conditions (Haas 2002).
- There is no way to scientifically determine "the" user capacity for an area; user capacity is determined by an administrative decision based on sound professional judgment supported and informed by scientific studies, management goals and objectives, public preferences, traditional uses, and many other factors (Haas 2001).
- Although scientific data on resource conditions and visitor experience can and should inform decisions on user capacity, the determination of user capacity is an administrative decision based on values as much as science. It can only be determined in a context that includes consideration of many factors (Haas 2001).

While the assumptions listed above are widely accepted by most recreation management professionals, there are some disagreements. For example, the National Park Service and other organizations believe that managing areas through the use of specific indicators and standards is sufficient to address user capacity and that the focus should not be on capacity as "a number of people."[3] Others believe that a number (or range) of users must be established for each management area in addition to the indicators and standards.[4] This Revised Merced River

[3] See panel discussion "Resolving Carrying Capacity Problems: Do Numbers Really Matter?" by Jeffrey L. Marion et al. In: 1999 *Congress on Recreation and Resource Capacity Book of Abstracts* (Lundquist and Haas 1999); see also Cole et al. 2005.

[4] See abstract "Barriers to Carrying Capacity" by Glenn E. Haas. In: 1999 *Congress on Recreation and Resource Capacity Book of Abstracts* (Lundquist and Haas 1999); see also Haas 2004.

Plan/SEIS recognizes that there are several methods available to establishing user capacity. Since there are differences in opinion on whether a specific number of users must be identified in a user capacity program, the National Park Service has included alternatives in this document that consider not only specific limits on numbers of people, but other types of methods, including limits on facilities, limits on specific activities and limits based on environmental or experiential conditions.

User Capacity Methods

Rafting in Yosemite Valley. (NPS photo)

As previously discussed, there are many ways of addressing user capacity and no one approach is appropriate in all circumstances (Haas 2002). To ensure that the National Park Service is giving full consideration to the various ways of managing user capacity, the planning team evaluated other user capacity management methods that could be added to the existing user capacity program at Yosemite National Park. While investigating different methods for addressing user capacity, the National Park Service researched how other agencies have dealt with user capacity, reviewed academic studies on managing user capacity on public lands, and met with a number of user capacity experts to evaluate a variety of user capacity methods and specific limits (NPS 2004bb).

In a park as vast and diverse as Yosemite, one approach is not sufficient to address the complex range of uses and use impacts. It was determined that the alternatives presented in this revised plan should include a variety of methods for addressing user capacity, including those that are currently in use at the park and additional methods that could be added to the existing user capacity program. In general, user capacity methods can be expressed as various types of limits, including:

1) **Limits Based on Environmental and Experiential Conditions**
2) **Limits on Numbers of People**
3) **Limits on Facilities**
4) **Limits on Specific Activities**
5) **Other related user capacity management tools that may or may not include specific measurable limits**

The various user capacity methods presented in this document are presented below and establish a consistent outline for describing the new user capacity program components proposed in Chapter III, Alternatives.

1) Existing Limits Based on Environmental and Experiential Conditions

With limits based on environmental and experiential conditions, the overall condition of natural and cultural resources and the quality of visitor experience are monitored and then controlled through management actions. Using this method, the National Park Service sets quantifiable standards for resource and visitor experience conditions; these standards are designed to protect the river's Outstandingly Remarkable Values. If the standards are not being met or conditions are degrading, park managers take action as needed or appropriate to restore the desired conditions. For example, if an area contains wetlands and riverbanks, the conditions of these resources are monitored to ensure that use levels in the area are not adversely affecting these resources. If resource conditions are deteriorating, park managers take steps to change use such as reducing use levels, redirecting use away from sensitive areas, or changing the type or timing of use. So, if a riverbank is eroding because a high number of rafters use the area to launch rafts, park managers might limit the number of people who can use the area to launch rafts or close the area to raft launching and direct these people to an area that is better suited to this use.

Visitor experience conditions include factors such as perceived crowding and traffic congestion. Visitor surveys indicate that crowding and traffic are the two factors that most adversely affect visitors' recreation experience (Manning et al. 1999a, ORCA 2000). By setting traffic congestion as a standard for visitor experience, the congestion can serve as a measure to indicate whether or not conditions are acceptable. When traffic conditions deteriorate, park managers would need to reduce the number of vehicles allowed in an area to make sure that traffic congestion standards are not exceeded — that is, that traffic is not so congested that it exceeds the acceptable limit. This method of managing user capacity is the basis for the VERP program described later in this chapter.

2) Limits on Numbers of People

Another user capacity method is to establish limits on the number of users. This type of limit can be implemented in several ways. For example, it is possible to limit the number of people in the river corridor, in each river segment, or in each management zone. Similarly, these limits can be expressed as the number of people in 1 year, the number of people over 24 hours, or the number of people at any one time. Some of the action alternatives in Chapter III explore these various approaches to managing numbers of people.

3) Limits on Facilities

Facility limits is one method of managing use and includes restrictions on the amount of overnight lodging and camping, the number of private vehicle parking spaces, the number of bus parking spaces, etc. When facility limits are implemented, the management focus is not on the exact number of people in an area. Hypothetically, in an area with a specific amount of parking capacity, the number of people in the area could be very different on a day with an average of two people per car versus an average of four people per car. In practice, Yosemite has derived an average number of people per car (as well as the average number of people per lodging room and campsite), and these averages are based on park visitation data collected over the years. Although the exact number of people is not being directly controlled through facility limits, the range in the number of people is limited because most people access the park by car and cannot access a developed area if they cannot find a place to park. Thus, use is limited by managing the capacity of various facilities.

The effectiveness of this type of user capacity limit is demonstrated in Yosemite Valley each day. Visitors tend to congregate in the east Valley where parking and other visitor facilities are concentrated. On the other hand, visitor use levels in the west Valley, where parking and shuttle access is limited, remains well below east Valley levels.

4) Limits on Specific Activities

Limits on specific activities regulate what activities can be done in a certain area or during a certain time period. For example, in Yosemite there are currently regulations on where people can raft in the Merced River, and these regulations restrict rafting during certain time periods based on water levels. Other restrictions apply to where fishing is allowed, the type of fishing lures and hooks that can be used, and limits on the number of fish that can be caught. In addition, there are other regulations that limit various activities to certain areas in order to protect park resources. For example bicycle use is only allowed on paved roads or designated multi-use paved trails in Yosemite Valley.

5) Other Related User Capacity Methods

In addition to user capacity methods that can be expressed as specific limits, as described previously, other types of methods can affect user capacity. A number of federal laws require the National Park Service to protect resources from use-related impacts, even if they do not require the specific identification of a user capacity. The National Park Service has several ongoing natural and cultural resource protection and enhancement programs that are implemented throughout Yosemite to comply with these federal laws and National Park Service directives. In addition, methods such as management zoning provide guidance for managing user capacity by prescribing the desired types and levels of use and development for various areas within the park and within the river corridor.

MANAGEMENT ZONING
The Mist Trail to Vernal and Nevada Falls is part of the Diverse Visitor Experience zone.

As a user capacity tool, zoning specifies the types and levels of use allowed within a given area. (NPS photo by B. Baillie)

Yosemite National Park's Existing User Capacity Management Program

Managing the impacts of visitor use is nothing new in Yosemite. For years, systems have been in place to establish limits on various uses. Although the Merced River Plan adopted in 2000 identified the VERP process as one of the National Park Service's preferred methods for addressing user capacity, a number of other methods have been and are currently being used to manage user capacity in Yosemite National Park. Some of these methods include overnight visitor limits in wilderness, group size limits on trails, facility and utility capacity limits, seasonal and area restrictions on uses such as rafting, and other limits. While all of these measures address user capacity and the potential for user impacts on park resources, the Revised Merced River Plan/SEIS looks at alternatives that would add new and more comprehensive measures to the ongoing user capacity management program at Yosemite National Park.

Yosemite National Park published its *User Capacity Management Program for the Merced Wild and Scenic River Corridor* in 2004 (NPS 2004a). It summarizes the various components that exist in the park today to address user capacity and resource impacts. The primary user capacity components are summarized and described in table III-1 in the discussion of the No Action Alternative. A summary of Yosemite's Existing User Capacity Management Program is presented below. Except where noted in Chapter III, Alternatives, this Yosemite User Capacity Management Program is common to all alternatives.

1) Existing Limits Based on Environmental and Experiential Conditions

Wilderness Impacts Monitoring System

The Wilderness Impacts Monitoring System (WIMS) began in the 1970s. Under WIMS, the National Park Service conducts wilderness-wide inventory and monitoring studies focused on campsite and trail impacts. Data gathered from these studies are used to determine when, where, and why significant change occurs, and to provide a system for tracking those changes. It provides wilderness managers a system to help understand the relationship of natural conditions, visitor experience, and wilderness resource management. WIMS is also used to track the effectiveness of the Wilderness Trailhead Quota System in preventing unacceptable human-caused changes. Information from WIMS has been used over the years to adjust the trailhead quotas as needed to protect wilderness resources.

Visitor Experience and Resource Protection (VERP) Framework

The VERP framework is a tool developed by the National Park Service to address user capacities and ensure the protection of natural and cultural resources and the visitor experience (Hof and Lime 1997). From Arches to Acadia National Parks, VERP programs have been helping park managers address the impacts of visitor use since the 1990s (NPS 1997x, NPS 1995e). In Yosemite, the VERP program being implemented will monitor of the overall health of park resources and the Outstandingly Remarkable Values. It will implement management actions to protect and enhance the Outstandingly Remarkable Values. The VERP process will serve as a regular report card, informing the public on a quarterly basis of the status of Outstandingly Remarkable Values, as well as the management actions being taken to protect and enhance them.

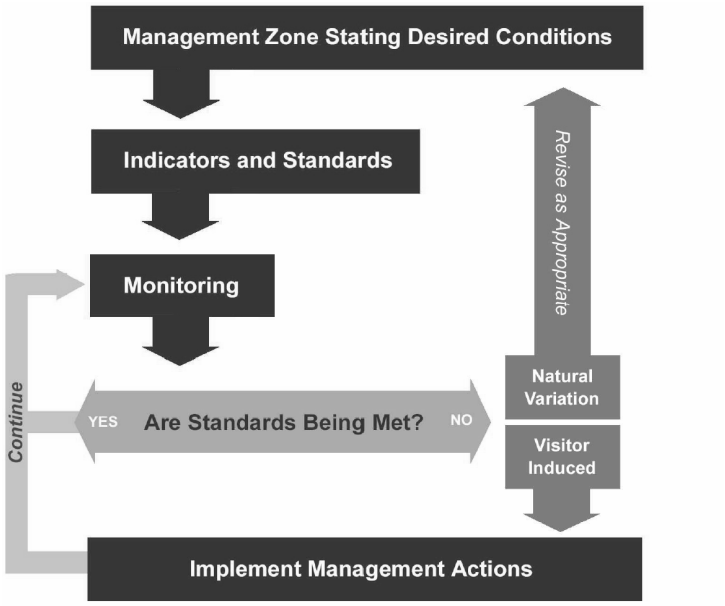
In the VERP framework, user capacity is defined as "the types and levels of visitor use that can be accommodated while sustaining the desired resource and social conditions that sustain the

purpose of the park units and their management objectives" (NPS 2001). The VERP framework is an iterative, ongoing process that:

- Prescribes what are known as the *desired conditions*[5] for resources and visitor experiences for a given area (not just prescribing a maximum number of visitors).
- Selects specific indicators (i.e., qualities that reflect the overall condition of park resources and visitor experience).
- Sets quantifiable standards, against which the indicator is measured.
- Monitors conditions on the ground.
- Takes responsive and informed management actions as required when standards are not being met.
- Provides regular updates to the public, including an annual report summarizing results of monitoring.
- Continually improves and adjusts the program based on the knowledge gained over time.

These components provide a comprehensive process for taking informed actions to manage all of the elements of visitor use that may influence desired conditions and the Outstandingly Remarkable Values. Figure II-1 illustrates the VERP process.

Figure II-1
VERP Framework



5 "Desired conditions" encompass desired cultural resource conditions, desired natural resource conditions, and desired visitor experiences.

VERP is a decision-making *framework* , enhancing and informing the park manager's role in decision making. In fact, managers must make crucial decisions to determine desired conditions, choose appropriate management actions, and assess occasional overlap between protecting park resources and providing for visitor experience opportunities. The VERP framework is used as a form of adaptive management.[6] Where uncertainty exists about impacts associated with visitor use, knowledge and understanding of visitor use issues improves and evolves over time, and management actions are adapted accordingly (Haas 2002). Continual hypothesis testing, data collection, and data analysis will result in the refinement of indicators and standards to better inform management decisions.

The VERP framework is based on the understanding that there are many aspects of visitor use that must be managed to protect desired conditions, including the number of people in an area, their behavior, when use occurs (timing), and how much use occurs within a specific area (distribution). All of these elements can affect desired resource and visitor experience conditions (Leung and Marion 2000). The VERP framework includes indicators and standards that set limits on the amount of change allowed to desired resource and visitor experience conditions that are affected by the various elements of visitor use. In summary, the VERP framework establishes *quantitative measures of visitor capacity* by setting specific measurable limits (standards) that allow for existing conditions to be compared to desired conditions. This process ultimately results in better information from which park managers can address the various aspects of visitor use.

VERP Framework Elements. Nine steps are integral to the development of the VERP framework. While the scope of the elements, the order in which they are undertaken, and the specific methods used to complete the elements may vary in different situations, all of the elements are necessary to implement a VERP program. Although the elements are numbered and may appear in a linear process, it is important to remember that the VERP framework is iterative, with feedback and "feed-forward" occurring throughout the elements. The nine VERP elements are as follows:

Element 1	Assemble an interdisciplinary project team
Element 2	Develop a public involvement strategy
Element 3	Develop statements of park purpose, significance, and primary interpretive themes; identifying planning constraints
Element 4	Analyze park resources and existing conditions
Element 5	Describe a potential range of visitor experiences and resource conditions (potential descriptive zones)
Element 6	Allocate the potential zones to specific locations in the park (prescriptive management zoning)
Element 7	Select indicators and specify standards for each zone; develop a monitoring plan
Element 8	Monitor resource and social indicators (analyze and evaluate indicator performance, continue monitoring with finalized indicators)
Element 9	Take management action

[6] Adaptive management is a process that allows the development of a plan when some degree of biological and socioeconomic uncertainty exists. It requires a continual learning process, a reiterative evaluation of goals and approaches, and redirection based on an increasing information base and changing public expectations (Baskerville 1985).

What VERP Is Not. It is worth noting what VERP will not do:

- VERP does not specify the total number of visitors that the river corridor, as a whole, can accommodate at one time. Such an aggregate figure would mask problems at "hot spots" and would not provide managers with useful guidance for addressing use-related problems.
- As a framework for addressing user capacity, VERP is not driven by the capacity of existing infrastructure. Expanding or constructing facilities does not necessarily mitigate visitor use impacts to visitor experience or resources.
- VERP, as applied in the Merced Wild and Scenic River corridor, may not directly transfer to other areas of Yosemite National Park. It may be implemented elsewhere in the park at some future date; desired conditions, indicators, and standards are being developed with this possible expansion in mind. However, due to an emphasis on protecting Outstandingly Remarkable Values and other factors, it is possible that future implementation of VERP outside of the Merced Wild and Scenic River corridor will not dovetail perfectly.
- VERP does not address impacts that do not result directly from visitor use. Impacts from park operations and management activities (e.g., fire management), natural variability (e.g., high water), development (e.g., construction, demolition), and other causes not directly associated with visitor activities are managed through other methods.
- VERP is not static. Visitor use patterns, desired visitor experiences, and resource conditions change with time. VERP is an iterative process of monitoring, evaluation, and adjustment.

Although the VERP framework was identified as the National Park Service's primary user capacity management tool in the 2000 Merced River Plan, the remaining steps in the process had not been completed at the time of the Ninth Circuit Court of Appeals' October 2003 decision. This Revised Merced River Plan/SEIS proposes a fully developed VERP program for Yosemite National Park, including the development of specific indicators and standards. A complete description of Yosemite's VERP program is presented later in this chapter; standards and indicators are summarized in table II-5.

2) Existing Limits on Numbers of People

Wilderness Trailhead Quota System

The Wilderness Management Program regulates wilderness use in Yosemite National Park, primarily through the Wilderness Trailhead Quota System. The daily quota for each wilderness trailhead is listed in table II-1. As shown, this system allows for a maximum of 1,280 overnight visitors to enter the wilderness each day.

The Wilderness Trailhead Quota System was established in the 1970s to protect wilderness areas within Yosemite National Park. This system assigns a daily quota for each wilderness trailhead in the park. The trailhead quota system protects both the visitor experience and the park's natural and cultural resources by limiting and dispersing visitor use, which results in a quality visit while not causing unacceptable impacts to wilderness resources. It also enables agency personnel to contact all overnight visitors to educate them about wilderness regulations and each user's responsibilities for protecting Yosemite's wilderness.

Table II-1
Yosemite Wilderness Trailhead Quota System[c]

Entry/Exit Trailhead	Quota[a]	Entry/Exit Trailhead	Quota[a]
Wawona		**Tioga Road (continued)**	
431 Mariposa Grove[b]		792 Yosemite Creek	25
601 Chiquito Pass	35	801 Ten Lakes	40
611 Chilnualna Falls	40	811 Porcupine Creek	25
621 Alder Creek	25	821 May Lake	25
Alder Creek (Wawona Ranger Office)	25	831 Snow Creek	10
		841 Olmstead Point	10
Glacier Point Road			
581 Badger Pass[b]		**Tuolumne Meadows**	
631 Deer Camp Road	25	851 Sunrise Lakes/Clouds Rest	20
651 Westfall Meadow	10	861 Murphy Creek	15
652 Bridalveil Campground	25	871 Cathedral Lakes	25
653 McGurk Meadow	15	872 Budd Creek (cross country only)	5
661 Lost Bear Meadow/Ostrander	25	881 Elizabeth Lake/Nelson Lake	15
671 Mono Meadow	20	882 Rafferty Creek	35
681 Pohono from Glacier Point	15	883 Lyell Canyon	40
691 Pohono from Taft Point Trail	10	885 Glen Aulin	35
692 Glacier Point to Illilouette	30	883 Cold Canyon/Waterwheel Falls (pass through Glen Aulin)	15
Yosemite Valley		881 Young Lakes via Dog Lake	20
411 Rockslides Trail (cross country only)	10	888 Young Lakes via Glen Aulin	10
421 Old Big Oak Flat	10	891 Gaylor Creek (no camping)	
641 Pohono from Wawona Tunnel	10	901 Mono/Parker (no camping)	15
693 Glacier Point to Little Yosemite	10	911 Gaylor Lakes (no camping)	
694 Four Mile Trail (no camping)	10	912 Mt. Dana (no camping)	
701 Happy Isles to Illilouette	10	913 Tioga Pass[b]	
702 Happy Isles to Little Yosemite	30		
703 Happy Isles to Sunrise Creek or Merced Lake (pass through Little Yosemite Valley)	10	**Mather and Hetch Hetchy**	
		751 Aspen Valley Road	10
711 Mirror Lake/Snow Creek	25	921 Base Line Camp Road	25
721 Yosemite Falls	25	922 Trail from Mather	25
		931 Mather Ranger Station	25
Tioga Road Corridor		941 Cottonwood Creek	15
591 Crane Flat[b]		942 Poopenaut Valley	25
592 Merced Grove (no camping)		951 Rancheria Falls	35
731/732 Tamarack Creek/Old BOF	25	952 Beehive Meadows (Vernon)	35
741 South Fork Tuolumne River	25	953 Miguel Meadows	15
761 White Wolf to Aspen Valley	25	961 Lake Eleanor (through Cherry Lake)	25
762 White Wolf to Smith Meadow including Harden Lake	25	**Cherry Lake (by USFS permit)**	
763 White Wolf to Pate Valley/Grand Canyon	30	971 Kibbie Creek	25
771 White Wolf Campground	10	981 Kibbie Ridge	25
781 Lukens to Yosemite Creek	10		
782 Lukens to Lukens Lake	10	**Total per day**	**1,280**

SOURCE: Yosemite National Park, Wilderness Management Branch, 2004
NOTES:
a Per day
b Winter only
c Park managers can make a resource-based decision to change the Wilderness Trailhead Quotas if appropriate.

The Wilderness Trailhead Quota System was adopted as part of the Merced River Plan. Together with the Wilderness Impact Monitoring System (WIMS), it allows park managers to regulate the type and amount of use in the wilderness segments of the river. Over time, this system has proven to be an effective way to achieve the desired visitor experience conditions while protecting Outstandingly Remarkable Values in these areas. The Wilderness Trailhead Quota System regulates use in 51 miles of the 81-mile Merced River corridor.

Superintendent's Compendium

The Superintendent's Compendium[7] (NPS 1999b) establishes specific regulations and policies for Yosemite National Park, including specific limits on use based on numbers. The Superintendent has the authority to manage visitor use to protect the park's natural and cultural resources, and the Compendium documents the reasoning behind the use limits established under this authority (e.g., public use limits, rafting and fishing restrictions) Although these use limits and restrictions apply to various areas of the park, including some outside the Merced River corridor, those that specifically address uses within the Merced River corridor are described below:

- Trailhead quota system limits total overnight entries into wilderness to 1,280 per day[8].
- Overnight visitors in wilderness areas may travel in groups of up to 15 if using established trails. On cross-country routes (off trail), overnight visitors may travel in groups of up to 8.
- Day visitors in wilderness areas may travel in groups of up to a maximum of 35 people on established trails. Day visitors may travel off trail in groups of up to 8.
- Stock use is limited to 25 head on existing trails. Stock are not allowed off trail except to feed and water.
- The maximum number of bicyclists allowed in any one group is 30. Bicyclists are limited to paved roads and paved trails.
- Park management may implement temporary access restrictions in Yosemite Valley when westbound traffic is backed up from Lower Yosemite Fall to the Curry Village four-way intersection or all day-visitor parking spaces have been filled.
- Park management may implement temporary access restrictions in Wawona when all day use parking spaces have been filled.

General Management Plan Visitor Capacity Goals

The Yosemite National Park *General Management Plan* was adopted in 1980. In that era, visitor carrying capacity for national park plans was based on the capacity of facilities and infrastructure. Changes to existing facilities and infrastructure were recommended to fulfill and support management objectives. In this method, facility capacity defined the visitor carrying capacity.

The *General Management Plan* visitor capacity "goals" were established based on facility capacities that were well below the actual level of facilities in 1980. That is, the existing facility capacities were greater than the capacities deemed optimum by the plan. Thus the *General Management Plan* called, not only for a reduction in facility capacity, but relocation of many existing facilities out of Yosemite Valley. These goals to remove and relocate facilities out of the Valley have guided all park planning efforts subsequent to the *General Management Plan*, including this plan. (For a comparison of facility capacities, see tables III-5 and III-6).

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[7] Under the authority of 16 USC Section 3 and Title 36 CFR Chapter 1, parts 1-7m the Superintendent's Compendium establishes specific regulations and policies for Yosemite National Park.

[8] The trailhead quotas have been revised since the Superintendent's Compendium was issued in 1999.

In the 1990s, national scientific and scholarly research, as well as National Park Service policy discussions, resulted in the adoption a new methodology for determining visitor carrying capacity. This methodology—the VERP framework—is described in *Management Polices 2001* and in new Park Planning Program Standards signed in August 2004. While the land use management zones and general management direction of the 1980 *General Management Plan* still largely meet the 2004 Park Planning Program Standards, the 1980 approach to visitor carrying capacities do not. In order to meet the new policy standards, Yosemite National Park will amend that element of the *General Management Plan* by translating the former carrying capacity approach to the more responsive VERP process through each new planning effort undertaken within the river corridor. The visitor carrying capacity approach proposed in Alternative 2, the preferred alternative, for the Revised Merced River Plan/SEIS would therefore amend the subject corridor portion of the *General Management Plan* with regard to carrying capacity.

In the future, overall visitation could increase or decrease under Alternative 2 as compared with *General Management Plan* levels. The overall level of park visitation, including the types and levels of use, would be informed by the results of monitoring as a component of the VERP program, which is designed to ensure visitor levels do not degrade Outstandingly Remarkable Values.

3) Existing Limits on Facilities

As noted in the *General Management Plan* and the *User Capacity Management Program for the Merced Wild and Scenic River Corridor* (NPS 1980, NPS 2004a), facility capacities are also used as specific measurable limits on park use. The *General Management Plan* called for the amounts and types of visitor use in the Merced River corridor to be managed through limiting the available facilities and then restricting access when these facilities were at capacity. Overnight capacity is largely controlled by the number of campsites and lodging units, along with the numbers of parking spaces provided for people using the Valley and Wawona to reach backcountry camping areas.[9] Day visitor use is limited by the numbers of parking spaces and the capacity of the road system in the developed areas of the river corridor.

In addition to limits set by the capacity of the park's facilities, use within the Merced River corridor is also limited by the capacity of the park's utility systems – the ability of park infrastructure to collect and treat wastewater. The capacity of the Yosemite Valley and Wawona wastewater systems is limited by the permitted capacity of the wastewater treatment facilities in each area. Yosemite Valley and all of El Portal (along the main stem of the Merced River) are served by the El Portal Wastewater Treatment Plant. The Wawona area (along the South Fork of the Merced River) is served by the Wawona Wastewater Treatment Plant. The standards for wastewater collection and treatment are established through the U.S. Environmental Protection Agency. The state of California sets the capacity for each facility, mandating the overall capacity through an issued permit (on file at each facility). In accordance with this permit, the National Park Service cannot design or build any facilities that will exceed the permitted capacity established for wastewater treatment. At the El Portal Wastewater Treatment Plant, the permit establishes a treatment capacity of 1 million gallons per day. At the Wawona Wastewater Treatment Plant, the capacity has been set at 0.105 million gallons per day.

[9] Backcountry overnight capacity is regulated by the Wilderness Trailhead Quota System and Wilderness Impact Management System.

4) Existing Limits on Specific Activities

In addition to providing limits on the number of people as discussed previously, the Superintendent's Compendium[10] (NPS 1999b) establishes limits on specific activities. These limits and restrictions apply to various areas of the park, including the areas within the Merced River corridor:

- The portion of the main stem of the Merced River between Stoneman Bridge and Sentinel Beach Picnic Area is open to all nonmotorized vessels designed specifically for carrying passengers within their structure on water between 10:00 a.m. Standard or Daylight Time and 6:00 p.m. Standard or Daylight Time.
- The entire length of open water on the main stem of the Merced River is closed to all floatation devices whenever the river gauge at Sentinel Bridge reads 6.5 feet or higher and the combination of air and water temperature is less than 100 degrees Fahrenheit.
- Fishing is prohibited at designated swimming beaches and from road bridges.
- Off-trail stock use is prohibited except for the purpose of watering, rest stops, or overnight camping.
- Bicycles are only permitted on roads and paved trails.
- The following limits apply to fishing in the Merced River from the Happy Isles footbridge downstream to Foresta Road bridge in El Portal:
  - Rainbow trout: catch and release only
  - Brown trout: a limit of 5 per day or a total of 10 in possession
  - Artificial lures or flies with barbless hooks only

In addition to placing limits on specific activities through the Superintendent's Compendium, park managers could limit specific activities by other means. There are several activities regulated through the provisions of Special Use Permits. These include commercial bus use, filming, weddings, and other activities. Additionally, research permits are issued through the Division of Resources Management and Science for any academic or scientific study in the park.

5) Other Existing Related User Capacity Methods

Governing Mandates

The basis for managing user capacity in Yosemite National Park comes from the governing mandates that direct management of the park. These governing mandates direct the National Park Service to protect the natural and cultural resources that exist in Yosemite, while allowing for the public enjoyment of these resources. Specific mandates, such as the Wild and Scenic Rivers Act, the 1982 Secretarial Guidelines for Wild and Scenic Rivers, and the National Park Service *Management Policies 2001* (NPS 2000f), direct the National Park Service to specifically address user capacity to ensure that use levels do not result in unacceptable impacts to park natural and cultural resources, and to the visitor experience. Although these governing mandates do not themselves set specific measurable limits for visitor use, they establish the authority and responsibility upon which Yosemite's user capacity program is established. Additional information on these and other governing mandates is provided in Appendix A.

[10] Under the authority of 16 USC Section 3 and Title 36 CFR Chapter 1, parts 1-7m the Superintendent's Compendium establishes specific regulations and policies for Yosemite National Park.

Management Zoning: Merced River Corridor

Management zoning is a technique required by National Park Service policy to classify park areas and prescribe future desired resource conditions, as well as the desired type and level of visitor activities and facilities for each area. Management zoning for the Merced River corridor was adopted by the 2000 Merced River Plan (see pages 57-101 of the summary document completed in February 2001). The zones were developed to protect and enhance the Outstandingly Remarkable Values within each segment of the river. Specifically, the zones place an emphasis on integrating protection and enhancement of natural and cultural resources identified as Outstandingly Remarkable Values along with the protection and enhancement of the diverse recreation opportunities also identified as an Outstandingly Remarkable Value.

Since the management zones adopted in the Merced River Plan present the desired conditions for each zone, they are the basis for development of some of the user capacity alternatives discussed later in Chapter III. The management zones in the river corridor fall into three general categories: (1) Wilderness zones, (2) Diverse Visitor Experience zones, and (3) Developed zones. Within each of these three categories, individual subzones provide for certain levels and types of visitor experience opportunities, resource conditions, facilities, and uses.

The management zones are organized along a continuum of allowed impact intensity. For example, Wilderness zones generally prescribe the least amount and intensity of visitor use and facility development, leaving the landscape mostly natural and protecting Wilderness segment Outstandingly Remarkable Values. Diverse Visitor Experience zones allow for a low-to-high range of visitor use and low-to-moderate range of facility development. While emphasizing protection and enhancement of natural and cultural resource-related Outstandingly Remarkable Values, they provide the diverse recreational opportunities also identified as Outstandingly Remarkable Values. Developed zones also occur in Scenic and Recreational segments. These zones allow for the most intensive visitor use and/or more developed facilities. The developed areas encourage concentration of higher-impact activities in areas better able to withstand heavy use or at locations that are already developed, thus enabling better protection of Outstandingly Remarkable Values in other areas.

Each management zone prescribes the maximum level of activities and facilities allowed. In practice, lower levels of visitor use and facilities may be provided than are described in the zoning prescriptions. For example, areas zoned for overnight lodging may be used for less-developed activities such as walk-in camping or could include protected natural areas. The management zones delineated on the zoning maps allow park managers to direct activities, facilities, or development within the management zone. Within a given management zone, some areas may be used for higher-intensity facilities or activities, while other areas within the same management zone are left natural and open. Management zoning provides overall guidance for decision-making over the long term. Zoning does not attempt to predict or prescribe every conceivable use or facility decision. In addition, standards and indicators developed for Yosemite's VERP program are based on the desired conditions established for each management zone, such as a range in the number of people for social indicators across zones where visitation levels and activities would be expected to vary.

Management zones for the river corridor are illustrated in figures II-2 through II-5 and a summary of the desired conditions for visitor use levels, facilities levels, and types of activities and facilities are described in table II-5. The river boundary and management zones for the El Portal Administrative Site are being re-evaluated in this Revised Merced River Plan/SEIS. Alternative boundaries and management zoning schemes being evaluated for El Portal are presented in Chapter III.

Figure II-2
Management Zones for the Merced Wild and Scenic River

Figure II-3
Yosemite Valley Management Zones for the Merced Wild and Scenic River

Figure II-4
Gorge Management Zones for the Merced Wild and Scenic River

Figure II-5
Wawona Management Zones for the Merced Wild and Scenic River

Table II-2
Management Zone Prescription Summary

Management Zone Objective	Activities	Facilities	Facilities NOT allowed
ZONE 1A – UNTRAILED			
▪ Primarily free of signs of modern human presence ▪ Extremely high opportunity for solitude; few, if any human encounters ▪ Minimal management activities ▪ Resources and natural processes allowed to exist in their most pristine state ▪ Managed with very low tolerance for resource degradation from visitor use	▪ Overnight camping 100 feet or more from a water body, by permit ▪ Hiking ▪ Rock climbing and mountaineering ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Photography and nature study	▪ Limited numbers of legal and appropriately dispersed campsites	▪ Support facilities such as food storage, ranger stations, and compost toilets ▪ Utilities ▪ Bridges ▪ Formal trails ▪ Interpretive signs or programs ▪ Commercial overnight facilities
ZONE 1B – TRAILED TRAVEL			
▪ Light to moderate use focused on marked and maintained trails ▪ Opportunities for solitude range from moderate to high; encounters with other parties will be infrequent ▪ Some management presence to accommodate resource protection and visitor use ▪ Presence of well-marked and maintained trails ▪ Managed with very low tolerance for resource degradation from visitor use	▪ Overnight camping 100 feet or more from a water body or trail, by permit ▪ Hiking ▪ Rock climbing and mountaineering ▪ Stock use as allowed in the *Wilderness Management Plan* ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Photography and nature study ▪ Very limited interpretive programs (e.g., guided walks for small groups)	▪ Marked and maintained trails ▪ Limited numbers of legal and appropriately dispersed campsites ▪ Historic features ▪ Occasional directional and regulatory signs, and safety signs only as necessary ▪ Footbridges only at trail crossings where necessary for resource protection and visitor access (in compliance with the *Wilderness Management Plan*)	▪ Large campsites with facilities ▪ Commercial overnight facilities ▪ Utilities
ZONE 1C – HEAVY USE TRAIL			
▪ High levels of use on marked and maintained trails and associated areas ▪ Opportunities for solitude range from low to moderate and is more limited on trails during peak times ▪ In some locations, sections of paved or rocked trails and fencing could be used to direct visitor use away from sensitive ecosystems ▪ Managed with a low tolerance for resource degradation due to visitor use	▪ Hiking ▪ Rock climbing and mountaineering ▪ Stock use as allowed in the *Wilderness Management Plan* ▪ Photography and nature study ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Very limited interpretive programs (e.g., guided walks for small groups)	▪ Marked and maintained trails. Directional, regulatory, and safety signs ▪ Footbridges only at trail crossings where necessary for resource protection and visitor access (in compliance with the *Wilderness Management Plan*)	▪ Campsites ▪ Commercial overnight facilities
ZONE 1D – DESIGNATED OVERNIGHT			
▪ Heaviest overnight use of all areas of the Wilderness zones ▪ Designated overnight areas would be centered at the Little Yosemite Valley Campground, Moraine Dome Campground, Merced Lake Campground, and the Merced Lake High Sierra Camp ▪ Opportunities for solitude will range from low to moderate depending on the season ▪ Social interaction will be common	▪ Overnight camping only within a campground setting, by permit ▪ Hiking ▪ Wilderness skiing ▪ Photography and nature study ▪ Very limited interpretive programs (e.g., occasional ranger talks, guided walks) ▪ Stock use as allowed in the *Wilderness Management Plan* ▪ Use of High Sierra Camps as allowed in the *Wilderness Management Plan*	▪ High Sierra Camps as allowed in the *Wilderness Management Plan* ▪ Designated campsites of moderate size ▪ Food storage and campfires, subject to regulation ▪ Compost toilets and toilet enclosures (as necessary to protect resources) ▪ Structures such as the Little Yosemite Valley Campground and Ranger Station, Merced Lake Campground, and Merced Lake High Sierra Camp	▪ New commercial overnight facilities ▪ Campsites outside of designated areas

Table II-2
Management Zone Prescription Summary

Management Zone Objective	Activities	Facilities	Facilities NOT allowed
ZONE 1D – DESIGNATED OVERNIGHT (continued)			
▪ Presence of National Park Service staff will be moderate to high ▪ Managed with a low tolerance for resource degradation due to visitor use ▪ Signs and fencing used to prevent unacceptable impacts ▪ Campsites located away from sensitive natural or cultural areas, including meadows, streams, lakes, and historic and archeological sites		▪ Marked and maintained trails ▪ Directional, safety, informational, and regulatory signs, and minimal interpretive signs when required for protection of resources ▪ Utilities associated with above facilities	
ZONE 2A – OPEN SPACE			
▪ Relatively undisturbed natural areas that receive only incidental or casual use ▪ Visitor experience is self-directed with few visitor or management encounters ▪ Managed with very low tolerance for resource degradation from visitor use ▪ Visitation levels may be controlled by parking limitations and by the lack of shuttle bus stops ▪ Limited trails and interpretive facilities ▪ Generally quiet with limited facilities	▪ Hiking and walking ▪ Photography and nature study ▪ Stock use in specified locations ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Rock climbing ▪ Very limited interpretive programs (e.g., guided walks for small groups)	▪ Vehicular roads could be realigned or relocated where they do not adversely affect Outstandingly Remarkable Values ▪ Limited turnouts for short-term parking and scenic viewing or shuttle bus stops ▪ Limited unpaved trails for hiking ▪ Limited interpretive signs to protect natural or cultural resources or to promote understanding of natural processes ▪ Boardwalks, fencing, and other features to direct travel appropriately to avoid sensitive resources, such as meadows ▪ Bridges where necessary for access, improved circulation, safety, and resource protection ▪ Utilities (wells, utility lines, pump stations, and other facilities where they are screened from view) ▪ Minimal utility crossings of the river, only where necessary to support park operations	▪ New roads and paved trails ▪ Day-visitor parking ▪ Support facilities, such as restrooms and picnic tables ▪ Interpretive centers ▪ Food services ▪ Bicycle paths ▪ Nonmotorized watercraft launch/removal facilities ▪ Campgrounds and lodging
ZONE 2A+ – UNDEVELOPED OPEN SPACE			
▪ Managed as *de facto* wilderness ▪ Primarily free from signs of human presence due to its inaccessibility ▪ Protects areas outside designated Wilderness that have limited or no trail access ▪ Some noise may be experienced due to nearby roads ▪ Managed in a similar manner as the Untrailed zone (1A)			▪ Roads, either existing or new ▪ Turnouts ▪ Interpretive or directional signs ▪ Trails, boardwalks, or fencing ▪ Bridges ▪ Utilities

Table II-2
Management Zone Prescription Summary

Management Zone Objective	Activities	Facilities	Facilities NOT allowed
ZONE 2B – DISCOVERY			
▪ Relatively quiet natural areas where visitor encounters are low to moderate ▪ More frequent visitor encounters may occur on trails during high-use periods ▪ Managed with low tolerance for resource degradation from visitor use ▪ Limits on use and facilities ▪ Trail access and interpretive signs at principal features and gathering areas ▪ Access to these areas may require a moderate level of physical exertion, some locations may be served by an access road and parking turnouts	▪ Hiking and walking ▪ Bicycling ▪ Photography and nature study ▪ Stock use in specified locations ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Rock climbing ▪ Picnicking, relaxing, and gathering at informal locations ▪ Limited interpretive opportunities (e.g., informal ranger contacts, guided walks for small groups)	▪ Vehicular roads and improved trails ▪ Small turnouts for trail access parking, scenic viewing, or shuttle stops ▪ Trails for hiking and through-trails for bicycling ▪ Minimal restroom facilities as needed to protect resources ▪ Fences, boardwalks, platforms, and other features to direct travel around sensitive resources ▪ Interpretive, directional, and safety signs ▪ Bridges where necessary for access, improved circulation, safety, and/or resource protection ▪ Utilities such as well sites, utility lines, pump stations, and other facilities (where screened from view) ▪ Minimal utility crossings of the river, only where necessary to support park operations	▪ Day-visitor parking ▪ Picnic facilities ▪ Nonmotorized watercraft launch and removal facilities ▪ Interpretive centers ▪ Food services ▪ Campgrounds and lodging
ZONE 2C – DAY USE			
▪ Moderate to high numbers of encounters and crowding on certain peak days ▪ Large groups may use these areas ▪ Accessible by automobile, shuttle bus, and by bicycle, with interpretive trails or other marked trails ▪ Managed with moderate tolerance for resource degradation from visitor use in specified areas	▪ Hiking and walking ▪ Photography and nature study ▪ Picnicking and social gathering ▪ Bicycling ▪ Stock use in specified locations ▪ Swimming and wading ▪ Rock climbing ▪ Fishing (per state regulations) ▪ Use of nonmotorized watercraft ▪ Full range of interpretive programs (e.g., ranger-led walks, talks)	▪ Roads and improved trails ▪ Day-visitor parking ▪ Turnouts for parking or scenic lookouts ▪ Bicycle trails ▪ Shuttle bus stops ▪ Support facilities (e.g., restrooms, picnic tables, telephones) ▪ Marked, maintained, and paved trails, including bicycle paths and interpretive trails ▪ Fences, boardwalks, walls, signs, and other features to direct travel appropriately around sensitive resources ▪ Nonmotorized watercraft launch and removal facilities ▪ Interpretive, directional, and safety signs and exhibits ▪ Utilities such as well sites, utility lines, pump stations and other facilities (where screened from view) ▪ Utility crossings of the river (where necessary to support park operations) ▪ Bridges where necessary for access, improved circulation, safety, and/or resource protection	▪ Interpretive centers ▪ Food services ▪ Campgrounds and lodging

Table II-2
Management Zone Prescription Summary

Management Zone Objective	Activities	Facilities	Facilities NOT allowed
ZONE 2D – ATTRACTION			
▪ High level of encounters with other visitors in these moderately to very busy areas ▪ Managed with moderate tolerance for resource degradation in specified areas ▪ Highly structured visitor experience with well-marked and often paved trails to guide visitors ▪ Facilities will be concentrated to minimize the extent of development and impacts ▪ Many areas will have a well-used trail, but minimal developed uses away from the entry hub or access point ▪ Trails may be paved, fenced, and well signed ▪ Visitor use in sensitive areas will be formalized and concentrated	▪ Hiking and walking ▪ Photography and nature study ▪ Sightseeing ▪ Stock use in specified locations ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Rock climbing ▪ Bicycling (only in specified locations, to ensure visitor safety and resource protection) ▪ Full range of interpretive programs (e.g., ranger-led walks, talks)	▪ Roads ▪ Day-visitor parking (to accommodate visitor access and administrative needs at high use areas) ▪ Bicycle trails ▪ Shuttle bus stops ▪ Support facilities such as restrooms, picnic tables, telephones, stables, and limited food services (where appropriate) ▪ Marked maintained and paved trails, including bicycle paths and interpretive trails ▪ Interpretive centers ▪ Interpretive signs, exhibits, displays, and kiosks ▪ Utilities such as wells, utility lines, pump stations and other facilities (where screened from view) ▪ Bridges where necessary for access, improved circulation, safety, and/or resource protection ▪ Limited utility crossings of the river (where necessary to support park operations)	▪ Nonmotorized watercraft launch and removal facilities ▪ Campgrounds and lodging
ZONE 3A – CAMPING			
▪ Visitor encounters will be moderate to high in the relatively dense clusters of campsites ▪ Provides with both vehicle-access camping and walk-in camping ▪ Picnic tables and restrooms would be provided ▪ Most areas have been previously developed ▪ Campsites would be accessed by well-marked trails with directional and informational signs ▪ Managed with moderate to high tolerance for resource impacts in localized areas ▪ Use will be directed away from sensitive areas ▪ River access will be provided via marked and potentially hardened trails	▪ Overnight camping within designated campsites ▪ Hiking and walking ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Sightseeing and photography ▪ Picnicking ▪ Bicycling (only in specified locations to ensure visitor safety)	▪ Designated campsites (could be equipped with fire rings, picnic tables, nearby restroom facilities, and RV hookups) ▪ Roads and parking areas ▪ Shuttle bus stops ▪ Marked, maintained, and paved trails ▪ Maintenance and administrative facilities needed to support campgrounds ▪ Directional, safety, informational, regulatory, or interpretive signs ▪ Bridges where necessary for access, improved circulation, safety, and/or resource protection ▪ Utilities such as wells, utility lines, pump stations, and other facilities (where screened from view) ▪ Interpretive facilities such as an amphitheaters	▪ Lodging, food services, stores ▪ Administrative offices not associated with camping ▪ Maintenance facilities not associated with camping

Table II-2
Management Zone Prescription Summary

Management Zone Objective	Activities	Facilities	Facilities NOT allowed
ZONE 3B – VISITOR BASE AND LODGING			
▪ Bustling atmosphere with high incidence of visitor encounters during peak-use times ▪ Most areas have been previously developed ▪ Facilities and lodging areas would be easily accessible by shuttle bus, automobile, trail, and bicycle ▪ Managed with a higher degree of tolerance for resource in localized areas ▪ Future projects in this zone will be designed to minimize the footprint of developed areas ▪ River access provided via marked and potentially hardened trails ▪ Structures such as fences, boardwalks, or walls may be provided	▪ Lodging ▪ Hiking and walking ▪ Swimming and wading ▪ Fishing (per state regulations) ▪ Sightseeing and photography ▪ Bicycling (only in specified locations, to ensure resource protection and visitor safety) ▪ Shopping ▪ Dining ▪ Full range of formal interpretation (e.g., slide shows, visitor center, walks) ▪ Marked, maintained, and paved trails	▪ Bicycle trails ▪ Visitor overnight accommodations (lodges, motel-type units, cabins, and tent cabins) ▪ Fences, boardwalks, walls, signs, and other features to direct use and protect resources ▪ Visitor services (e.g., visitor center, museums, eating establishments, gift shops, equipment rental) ▪ Roads and parking areas ▪ Bus turnouts, stops, and parking ▪ Bridges where necessary for access, improved circulation, safety, and/or resource protection ▪ Utilities such as wells, pump stations, utility lines, and other facilities (screened from view) ▪ Interpretive facilities, such as amphitheaters ▪ Supporting operational facilities, such as employee housing, only where it is ancillary to the primary use (i.e., a small percentage of the total available area)	▪ Administrative offices not associated with visitor base or lodging operations ▪ Maintenance facilities and major utilities not associated with visitor base or lodging operations ▪ Day-visitor parking/transit center
ZONE 3C – PARK OPERATIONS AND ADMINISTRATION			
▪ Visitor use and experience of these zones will be limited ▪ Provides facilities that support the efficient functioning of the park ▪ Many areas have been previously developed ▪ Relatively busy, with heavy impacts from vehicles ▪ Managed with a high tolerance for resource impacts in localized areas ▪ New facilities will use sustainable design and construction principles	▪ Administrative activities by park staff ▪ Maintenance and repair activities by park operations staff ▪ Transportation/transit-related activities ▪ Visitor orientation and interpretation near parking/transit areas ▪ Picnicking near parking/transit areas ▪ Bicycling (only in specified locations, to ensure visitor safety) ▪ Marked, maintained, and paved trails, including bicycle paths and interpretive trails	▪ Day-visitor parking/transit center ▪ Roads, paved and unpaved (roads could be dirt or paved and closed to non-administrative traffic) ▪ Support facilities (including park administrative offices, employee housing, storage, construction staging areas, and utilities such as wastewater treatment plants, sprayfields for reclaimed water, domestic water supply, power plants, and other facilities) ▪ Interpretive facilities ▪ Visitor support facilities such as restrooms, picnic tables, telephones, food services, bicycle rental, small gift shops, showers, and lockers for visitors and employees ▪ Park information and orientation signs, exhibits, and kiosks ▪ Bridges where necessary for access, improved circulation, safety, and/or resource protection	▪ Campgrounds and lodging for visitors

Yosemite's Visitor Experience and Resource Protection (VERP) Program

In addition to the existing methods described previously in Yosemite's User Capacity Management Program, the Revised Merced River Plan/SEIS implements a fully developed VERP program. The existing methods along with the inclusion of the VERP program are elements common to all action alternatives. The following section provides a complete description of how the VERP program will be applied to protect and enhance the Merced River's Outstandingly Remarkable Values.

Desired Conditions/Management Zones

As discussed previously, the VERP user capacity management program relies on the concept of desired conditions. Desired conditions are defined in management zone prescriptions, which identify how different areas in the river corridor would be managed. A set of desired resource conditions, desired visitor experience opportunities, and types and levels of appropriate uses are prescribed for each management zone. Indicators and standards (described in the next section) are developed to provide information on whether those desired resource conditions and visitor experience opportunities are being met. The 2000 Merced River Plan established the existing management zones in the river corridor to protect and enhance the Outstandingly Remarkable Values and the free-flowing condition of the Merced River. A summary of the management zones prescriptions was provided in the previous section. A detailed discussion of the relationship between specific management zones and the river's Outstandingly Remarkable Values can be found in the Merced River Plan (NPS 2001a). The relationship between the revised zoning for the El Portal segment and Outstandingly Remarkable Values is provided in Chapter III, Alternatives in this document.

Specific and Measurable Indicators and Standards

VERP allows park managers to translate desired conditions, which are qualitative in nature, into quantitative (measurable) indicators and standards. *Indicators* identify what is important to provide quality visitor experience and resource conditions. They represent the general health of conditions in the river corridor. *Standards* provide the thresholds against which indicators are measured. A standard is the line in the sand that triggers if or when management action should be taken. Together, indicators and standards compare existing conditions against desired conditions and enable park managers to determine whether or not desired conditions are being realized. Indicators, which are measurable variables, are determined first; standards quantifiably define the acceptable conditions (i.e., measured values) for each indicator. These acceptable conditions are set at a level that will protect and enhance the Merced River's Outstandingly Remarkable Values. The VERP program developed in Yosemite includes both resource and social indicators to provide specific information regarding use-related effects on park resources and the river's Outstandingly Remarkable Values.

The indicators and standards established through the VERP program do not assume a one-to-one relationship between an Outstandingly Remarkable Value and a given indicator and standard. Most indicators were selected to provide information regarding the health of a number of Outstandingly Remarkable Values. For example, by monitoring the length of informal or "social" trails in meadows within Discovery (2B) and Day Use (2C) management zones, resource

managers are able to gain information regarding the condition of Outstandingly Remarkable Values as follows:

- The length and condition of social trails is indicative of the contiguity and ecological health of meadows and wetland areas (part of the biological Outstandingly Remarkable Value).
- The length of social trails in meadows is indicative of impacts to wildlife habitat, including special-status species whose habitat includes meadow areas (biological Outstandingly Remarkable Value).
- Traditional gathering areas used by American Indian groups may exist in meadows, and meadows may be contributing elements in cultural landscapes. These cultural resources could be affected by the proliferation of social trails in meadows (cultural Outstandingly Remarkable Values).
- The extent of social trails in meadows may affect visitor experience because meadows are enjoyable areas in which to engage in a variety of river-related recreational opportunities—including nature study and photography (recreation Outstandingly Remarkable Values).
- Social trails may affect the scenic interface of river, rock, meadow, and forest; therefore, monitoring the length of social trails in meadows contributes to the protection and enhancement of the scenic Outstandingly Remarkable Values.

As shown by this example, monitoring of indicators would present data that pertain to several types of Outstandingly Remarkable Values. This benefits park managers by providing a host of data from which desired conditions can be assessed. In addition, the indicators were chosen with the intent of providing broad use-related condition information on the areas monitored, and should therefore reflect the condition of Outstandingly Remarkable Values that are sensitive to use-related impacts. Taken collectively, the indicators and standards presented in Yosemite's VERP program would provide sound information on the overall condition of park resources, visitor experience opportunities, and the river's Outstandingly Remarkable Values. In addition, the program itself would enhance the scientific Outstandingly Remarkable Values through the collection and evaluation of data relating to the Merced River and its environment.

The selection of specific indicators is an important step and requires consideration of a number of factors that relate to the effectiveness of the indicator. Park staff determined that indicators must be evaluated against a number of criteria, as listed below. In order to be considered, an indicator must be:

- Connected to the Outstandingly Remarkable Values
- Meaningful
- Significant from an ecological or visitor experience perspective
- Measurable/quantifiable
- Representative of broader conditions
- Repeatable
- Affordable
- Responsive to management input or management action
- Related to use levels, behaviors, or patterns
- Understandable to the public
- Precise and accurate
- Based on best available science

- Feasible to implement
- Able to provide an early warning for resource degradation

As park managers gain knowledge from VERP field-testing, indicators and standards may be further refined. This iterative learning and refining process is a strength of the VERP program, as the program can be adapted and improved as knowledge grows. If it is determined that a particular indicator is not providing meaningful information about resource or social conditions, monitoring methods for a particular indicator could be revised or the park may decide to discontinue monitoring of that particular indicator and develop a new indicator. For example, the Exposed Tree Roots in Campgrounds (as presented in table II-5) indicator was field tested in 2004. Park resource staff determined that the methods used for the indicators did not work as well as in the high country where soil type and vegetation is much different. As a result, the park decided to focus on other indicators that would provide more meaningful information about visitor use in campgrounds.

The National Park Service would inform the public of VERP program progress and proposed revisions to indicators and standards through regular communications, as described later in this section.

Monitoring

For decades, the National Park Service has monitored the condition of many of Yosemite's resources and has taken action to protect them. In the 1990s, Stoneman Meadow in Yosemite Valley contained a web of informal trails that were harming the meadow's sensitive wetland vegetation and wildlife habitat. As a result, a boardwalk was installed to reduce the impacts of trampling. Today, use through the meadow is now directed to that boardwalk and plants and animals dependent on wetland habitats now thrive. While implementation of a VERP program in Yosemite is fairly new, its elements serve to formalize and improve on what the National Park Service has largely done for years. Monitoring is a key component to making informed visitor use management decisions under the VERP program. It is vital to have reliable data on resource conditions and visitor use so that park staff can ensure that existing conditions meet adopted standards. Indicator monitoring must be completed in consistent intervals and be based on sound science consistent with the values at stake and the decisions to be made. Intervals for monitoring the various indicators can range from monthly observations to surveys every few years and would vary depending on a number of factors, including the following:

- The indicator being monitored
- The status of the indicator relative to the established standard
- The sampling strategy needed to understand natural variability and change over time
- The zones and visitor use levels in question (high-use versus low-use areas)
- The efficient use of available staff and funding
- The length of time needed for a trend to become apparent

Informal trails marred Stoneman Meadow before a protective boardwalk was constructed. (NPS photo)

VERP is a science-based approach to managing user capacity. As such, some VERP indicators could require several seasons of field testing to verify their effectiveness before they are used to inform management decisions. Efforts are currently underway by park staff to test indicators and standards (listed in table II-5 of this chapter). Several of these are already providing good data on existing conditions, while others may require additional cycles of field testing. (Results from the 2004 monitoring season can be found in the Merced River Monitoring 2004 Annual Report.) This refinement process can sometimes take approximately 5 years to ensure that the VERP indicators and standards are functioning, and monitoring efforts are providing meaningful information to park managers. However, this does not mean that the park would take 5 years before taking action in response to VERP monitoring. If VERP indicators *indicate* that problems exist, park manager would be compelled to take action. The central premise behind VERP is taking *informed* action to respond to specific conditions on the ground. If a problem is identified (i.e., if a numeric standard is exceeded), staff would assess the root cause and identify the most appropriate management strategies to bring conditions back to within established standards.

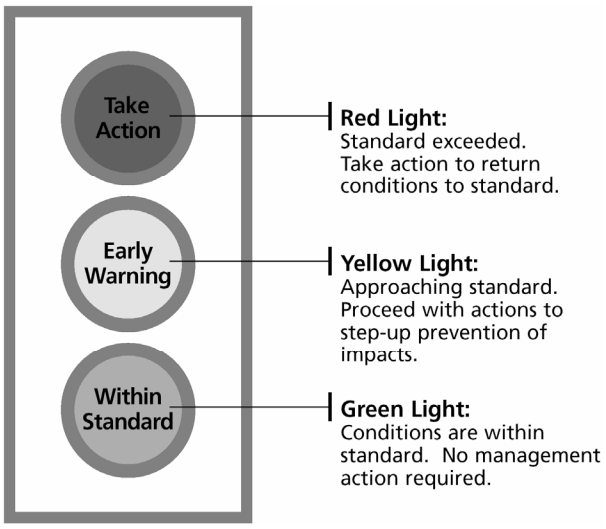
The results of monitoring will be presented to the public on a regular basis through the public involvement program associated with VERP. Information gathered through monitoring also plays an essential role in determining which management actions should be taken as described below. Monitoring, which is continual, is also used to evaluate the effectiveness of management actions taken and to determine the need for any additional actions.

Enforcing VERP Limits through Management Actions

The last element in VERP's nine steps is the implementation of management actions based on information gained through continued monitoring of conditions. The effective monitoring of resource and social indicators provides park managers with the information needed to guide meaningful management actions. The National Park Service VERP Handbook (NPS 1997q) provides guidance on determining the most effective and appropriate management action to implement, based on monitoring data.

The process of monitoring and its relationship to management actions can be likened to a traffic signal (figure II-6). A *green-light* condition occurs when monitoring shows that conditions are well within standards and no additional management actions are required. A *yellow-light* condition occurs when monitoring shows that conditions are approaching the standard. This early warning sign may call for implementing proactive management actions to protect and enhance the Outstandingly Remarkable Values. Measures taken at yellow-light conditions, when standards are still being met, may be less restrictive and focus on approaches such as public education. A *red-light* condition would be triggered when monitoring shows that conditions fail to meet the established standard, and management action must be taken to return conditions to the acceptable numeric standard. Management actions taken at this point are likely to be more restrictive approaches, including limitations on user numbers in certain areas, restrictions on certain activities, or closure of certain areas.

Figure II-6
Range of Potential Management Actions



Under VERP, park managers would be required to take responsive action when a red-light condition is reached. VERP is also designed to provide park managers with timely information so that action can be taken proactively during yellow-light conditions.

Management Action Strategies and Tactics

A range of potential management actions may be implemented when conditions are approaching or not meeting standards. Table II-3 lists some potential management actions. These potential management actions do not limit a manager's ability to act in response to information gained from monitoring. Rather, the actions listed in table II-3 present a sampling of a virtually unlimited range of actions that could be implemented. The actual management actions selected would depend on the particular setting and situation encountered. The National Park Service would provide information on the specific management actions being proposed through ongoing public involvement processes, such as the VERP quarterly updates and annual report.

General Strategies

The National Park Service's VERP Handbook (NPS 1997q) lists general strategies and tactics that can be used to address impacts documented through monitoring. The five general strategies include:

1) Increasing the supply of recreational opportunities, areas, and facilities to accommodate demand. (This strategy would only be used if it met the requirements of the Wild and Scenic Rivers Act.)
2) Reducing visitor use at specific sites, in individual management zones, or throughout the park.
3) Modifying the character of visitor use by controlling where the use occurs, when the use occurs, what type of use occurs, and how visitors behave.
4) Altering visitor attitudes and expectations.
5) Modifying the resource base by increasing the durability of the resource or maintaining/rehabilitating the resource.

Table II-3
Management Action Toolbox

VISITOR EDUCATION
▪ Educate through signs and interpretive displays ▪ Educate through information on web site and materials sent to media outlets ▪ Educate through outreach to local communities and businesses ▪ Educate through programs both inside and outside park ▪ Educate through interpretive electronic newsletters and park mailings ▪ Increase education about other areas to visit in order to disperse use ▪ Increase education regarding conditions and need for certain restrictions ▪ Increase education regarding alternative means of transportation ▪ Increase education regarding wildlife exposure to human food ▪ Increase education regarding importance of traditional plant use
SITE MANAGEMENT
▪ Use vegetative barriers, fences, or other barriers to limit access to certain areas ▪ Build additional trails to disperse users ▪ Reduce infrastructure (e.g., parking, picnic tables, restrooms, trails, or cables to Half Dome) ▪ Construct new infrastructure (e.g., observation platform or boardwalk) ▪ Expand infrastructure (e.g., restrooms, picnic facilities, bear-proof food lockers, or trash cans) ▪ Improve roadway system ▪ Close some areas temporarily or permanently
REGULATION
▪ Limit access to riverbanks except at designated areas ▪ Limit rafting (e.g., limit numbers or regulate launch and take-out areas) ▪ Restrict or redirect activities on banks (e.g., fishing, rafting, picnicking, etc.) ▪ Enact seasonal restrictions on various areas of the river ▪ Have fixed itineraries for wilderness permits ▪ Allow only ranger-led programs/tours in areas ▪ Close some areas temporarily or permanently ▪ Establish permit requirements or quotas for climbers, rafters, and other users ▪ Reduce/limit stock use in certain areas
DETERRENCE AND ENFORCEMENT
▪ Increase enforcement of permit requirements ▪ Use rangers to patrol river areas and educate users ▪ Increase ranger enforcement and fining program for violations
RATIONING AND ALLOCATION
▪ Reduce trailhead quotas ▪ Require day-use permits for hikers entering wilderness ▪ Limit overall number of users through entrance station quotas ▪ Establish permit requirements or quotas for climbers, rafters, and other users ▪ Reduce/limit stock use in certain areas ▪ Charge higher fees during peak periods ▪ Limit number of day-use commercial bus permits, including the Yosemite Area Regional Transportation System ▪ Limit number of cars allowed ▪ Limit number of people per campsite or lodging room ▪ Require day use reservations for visiting developed areas, such as Yosemite Valley ▪ Require reservations for visiting attraction areas, such as Lower Yosemite Fall ▪ Allow only ranger-led groups in certain areas

Possible Tactics

Tactics that park managers could implement in response to VERP monitoring also include five general categories:

1) Site management – including facility design, use of vegetative barriers, site hardening, and area or facility closures.
2) Rationing and allocation – including reservations, queuing, lotteries, eligibility requirements, and pricing adjustments.
3) Regulation – including the number of people/stock allowed in an area, the location or time allowed for uses, restrictions on the types of activities allowed, and restrictions on the types of equipment allowed.
4) Deterrence and enforcement – including restrictive signs, verbal or written warnings, tickets, fines, and increased enforcement patrols.
5) Visitor education – including fact sheets, interpretive programs, interpretive signs, and specific user group outreach efforts.

Questions to Consider

In determining what management actions to take when a condition does not meet the standard, park managers would consider the following factors:

- Would the action protect and enhance the Outstandingly Remarkable Values?
- Would the action protect the free-flowing condition of the river?
- Would the action adequately address the underlying cause or causes of the impact?
- Would the action be effective in resolving the impact?
- Would the action lead to creation of new problems?
- Would the action be subtle or obtrusive in terms of visitor perceptions of being managed?
- Would the action be direct or indirect in terms of how it influences visitor behavior?
- How would the action affect visitor freedom of choice?
- Would the action affect a large or small number of visitors?
- Would the action affect an activity to which some visitors attach a great deal of importance?
- Are visitors likely to resist the management action?
- What are the costs to park management of implementing the action?

Before taking any management action, park managers would use VERP monitoring data to identify as clearly as possible the root causes of deteriorating or substandard conditions. Numerous factors may be responsible for conditions, such as the type and level of visitor use, the timing of use, or the design of facilities. When an impact is not due to visitor use (e.g., some sort of natural event or cause), the management actions to address the impact would not target visitor use, but instead would target the specific underlying cause that was identified. Management would use information from these various factors to determine the most appropriate management action to implement.

The Role of Interpretation and Education as a Management Action

The provision of an educational and enjoyable experience for park users is central to the National Park Service's mission. Yosemite National Park's Division of Interpretation and Education and park partners, such as the Yosemite Institute and Yosemite Association, reach out to park visitors in a number of ways to help them feel informed and connected to Yosemite. Visitors armed with information and knowledge about the meaning and significance of the park's resources become better stewards of the land and take an interest in helping to protect resources. The range of educational programs emphasizes information about visitor impacts on resources and ways to reduce those impacts. Thus, education is an important element in the National Park Service efforts to manage use in the park and the Merced River corridor.

Educational messages can be an important management tool to prevent impacts to resources—or to reverse impacts that have already occurred (Gramann 2000). For example, when conflicts with bears obtaining human food reached record proportions, a Bear Awareness Campaign was launched. For several years, messages relating to the importance of storing food properly—in conjunction with other management actions, like installing nearly 2,000 bear-proof food storage lockers throughout the park—helped reduce the number of bear incidents in the park. When an area must be closed due to impacts in sensitive areas, management action is typically accompanied by efforts to educate visitors. Often, in areas containing protective fencing or boardwalks, educational signs inform users of the restoration efforts in progress and how visitors can help prevent future impacts—and even play a role in accelerating the restoration process. Education is a powerful and effective management action and has always played a vital role in helping the National Park Service fulfill its mission in Yosemite National Park. It continues to feature prominently as a management action in the various components of Yosemite's User Capacity Management Program.

Review Process for Proposed Management Actions

Management actions proposed for implementation would be required to comply with the requirements of NEPA, the National Historic Preservation Act, and other applicable laws. Depending on the action proposed, the appropriate level of environmental compliance would be completed. The National Park Service has a comprehensive NEPA screening process that is used to analyze all proposed park actions that have the potential to adversely affect the environment. For example, if monitoring in a given meadow determined that the standard for social trails was being exceeded, park managers might propose installation of a boardwalk or other protective measures, such as temporary closures. Since this could require limited construction activities in meadows, these proposals would likely be analyzed as part of a NEPA document and presented to the public for review and comment. In other cases where impacts were not as severe, educational efforts might be increased to redirect users away from a sensitive area, thereby helping to reduce impacts and keep conditions within a given standard. Implementation of educational measures would most likely not require any additional NEPA review. Table II-4 provides a list of the types of actions that typically are approved under a categorical exclusion[11] versus those actions that typically require an environmental assessment or environmental impact statement.

[11] A *categorical exclusion* is a type of federal actions that does not individually or cumulatively have a significant effect on the human environment which therefore neither an Environmental Assessment (EA) nor an Environmental Impact Statement (EIS) is required.

Table II-4
Possible Levels of NEPA Compliance for Various Management Actions

CATEGORICAL EXCLUSIONS
▪ Educate through signs and interpretive displays
▪ Educate through information on web site and materials sent to media outlets
▪ Educate through outreach to local communities and businesses
▪ Educate through programs both inside and outside park
▪ Educate through interpretive electronic newsletters and park mailings
▪ Increase education about other areas to visit in order to disperse use
▪ Increase education regarding conditions and need for certain restrictions
▪ Increase education regarding alternative means of transportation
▪ Increase education regarding wildlife exposure to human food
▪ Increase education regarding importance of traditional plant use
▪ Close some areas temporarily, such as riverbanks or meadows
▪ Increase enforcement of permit requirements
▪ Use rangers to patrol river areas and educate users
▪ Increase ranger enforcement and fining program for violations
▪ Use vegetative barriers, fences, or other barriers to limit access to certain areas[a]
ENVIRONMENTAL ASSESSMENT OR ENVIRONMENTAL IMPACT STATEMENT
▪ Build additional trails to disperse users
▪ Reduce infrastructure (e.g., parking, picnic tables, restrooms, trails, or cables to Half Dome)
▪ Construct new infrastructure (e.g., observation platform or boardwalk)
▪ Expand infrastructure (e.g., restrooms, picnic facilities, bear-proof food lockers, or trash cans)
▪ Improve roadway system
▪ Close some areas temporarily or permanently
▪ Limit access to riverbanks except at designated areas
▪ Limit rafting (e.g., limit numbers or regulate launch and take-out areas)
▪ Restrict or redirect activities on banks (e.g., fishing, rafting, picnicking, etc.)
▪ Enact seasonal restrictions on various areas of the river
▪ Have fixed itineraries for wilderness permits
▪ Allow only ranger-led programs/tours in areas
▪ Close some areas temporarily or permanently
▪ Establish permit requirements or quotas for climbers, rafters, and other users
▪ Reduce/limit stock use in certain areas
▪ Reduce trailhead quotas
▪ Require day-use permits for hikers entering wilderness
▪ Limit overall number of users through entrance station quotas
▪ Establish permit requirements or quotas for climbers, rafters, and other users
▪ Reduce/limit stock use in certain areas
▪ Charge higher fees during peak periods
▪ Limit number of day-use commercial bus permits, including the Yosemite Area Regional Transportation System
▪ Limit number of cars allowed
▪ Limit number of people per campsite or lodging room
▪ Require day use reservations for visiting developed areas, such as Yosemite Valley
▪ Require reservations for visiting specific attraction areas, such as Lower Yosemite Fall
▪ Allow only ranger-led groups in certain areas

a These types of management actions would be evaluated on a case-by-case basis and may require further NEPA compliance beyond that of a categorical exclusion (e.g., environmental assessment or environmental impact statement).

In addition to any required NEPA process, park management would provide information on the VERP program—including information on management actions implemented—to the public on a regular basis as described below.

Reporting to the Public

The National Park Service is committed to maintaining the transparency of the VERP program in order to provide for greater accountability and opportunities for public involvement. The results of parkwide monitoring activities will be presented to the public on a regular basis as part of the public involvement component of VERP. The National Park Service in Yosemite has committed to quarterly updates to the public on the status of the VERP program. In October 2004, the first

reporting session was held at a Yosemite Valley public meeting. A subsequent meeting was held in April 2005 after publication of the first annual VERP monitoring report. Future quarterly reports may be presented in public meetings or as written updates on the park's web site or through its electronic newsletter currently emailed to nearly 5,000 subscribers. In addition, the National Park Service will produce an annual VERP program report that will be available to the public and published on the park's web site. (Reports for 2004 and future reports can be seen at www.nps.gov/yose/planning.) This open process will keep the public informed about the status of the VERP program and how it is being used to manage visitor use to the appropriate level consistent with the Wild and Scenic Rivers Act's mandate to protect and enhance the Merced River's Outstandingly Remarkable Values.

Overview of 2005 Standards and Indicators

Yosemite National Park has developed a comprehensive list of standards and indicators for the Merced River corridor to monitor the impacts of visitor use on the Outstandingly Remarkable Values within each management zone. These indicators were developed through a series of workshops with an interdisciplinary team of park staff, scientists, and nationally-recognized VERP experts. Indicators will continue to be fine-tuned as more data is collected and park managers can ensure that the selected indicators are providing meaningful data to guide park management actions. As described in table II-5, a variety of resource and social indicators will be monitored in 2005 throughout the river corridor and within the management zones where they are most suited.

For example, in places where the park is managing for a wilderness experience (i.e., solitude) in zones Untrailed Travel (1A) and Trailed Travel (1B), social indicators that target rates of encounters would be used. In Discovery (2B) and Day Use (2C) zones where the park is managing for a spectrum of recreational activities, both social and resource indicators that target resource health and crowding would be monitored. These indicators include impacts to meadows from social trails or the level of occupied picnic tables in picnic areas. In developed areas, management zones Camping (3A) and Visitor Base and Lodging (3B) where the park is managing for more concentrated use, both resource and social indicators would be monitored. Examples of monitored indicators are impacts to wildlife associated with the availability to get human food and the level of traffic congestion associated with vehicles on roads or in parking areas.

Table II-5 presents the indicators to be monitored during the 2005 VERP field season. The assigned standard for each indicator is also presented, as well as potential management actions that would be appropriate within a particular management zone. Standards for social indicators (noted as "reflects crowding") may be expressed as a range in the standard, as the park manages for different types of visitor experience in different zones. Resource indicators (noted as "reflects the health of the resources") do not present a range in the standard, regardless of the management zone. Some management actions that are appropriate in Developed zones may not be appropriate in Wilderness zones, which is why management actions presented may vary between zones.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
		WILDERNESS ZONES		
1A Untrailed Travel	Number of Encounters with Other Parties (reflects crowding)	No more than one encounter with another party per day 80% of the time.	Recreation	▪ Reduce Wilderness trailhead quotas. ▪ Restore social trails. ▪ Increase educational about other areas to visit. ▪ Increase education regarding conditions and need for dispersing use. ▪ Close some areas temporarily or permanently. ▪ Increase enforcement of permit requirements. ▪ Have fixed itineraries for wilderness permits.
1B Trailed Travel	Number of Encounters with Other Parties (reflects crowding)	No more than six encounters with another party per day 80% of the time.	Recreation	▪ Reduce infrastructure in 1B zone (cables, bridges, etc.). ▪ See other potential management actions for this indicator in zone 1A above.
1C Heavy Use Trail (Little Yosemite Valley)	Wildlife Exposures to Human Food (reflects health of wildlife resources)	5% reduction in feeding of wildlife, food improperly stored, and backpackers not using food storage canisters. Measured annually and evaluated using a running 5-year average.	Biological	▪ Increase education efforts on effects of wildlife exposure to human food. ▪ Increase ranger enforcement and fining program for violations. ▪ Require bear canisters in wilderness. ▪ Add additional bear proof food lockers if necessary. ▪ Limit areas where food is allowed. ▪ Limit overall number of users through reduced trailhead quotas.
	Actual Number of People Recreating within the River Protection Overlay (reflects crowding)	No net increase from 2005 baseline of number of people in the River Protection Overlay at selected sites. Sampled mid-week, weekends, holiday weekends, and weeks following holidays during peak periods.	Recreation	▪ Require permits for day use hikers in this zone. ▪ Educate visitors on effects of crowding in River Protection Overlay. ▪ Restrict activities within River Protection Overlay. ▪ Enact seasonal restrictions on various areas of the river. ▪ Limit overall number of users through entrance station quotas. ▪ Restrict day use access to ranger-led parties.
	People at One Time at Selected Sites (reflects crowding)	Not more than 20 people on a 50-meter section of the trail at any one time 80% of the time. Sampled mid-week, weekends, holiday weekends, and weeks following holidays during peak periods.	Recreation	▪ Require permits for day use hikers in this zone. ▪ Allow only ranger-led programs/tours for day use in this area. ▪ Reduce infrastructure (cables from Half Dome). ▪ Increase education about other areas to visit. ▪ Increase education regarding conditions and need for dispersing use. ▪ Close some areas temporarily or permanently. ▪ Limit overall number of users through entrance station quotas.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
		WILDERNESS ZONES (continued)		
1D Designated Overnight	Wildlife Exposures to Human Food (reflects health of wildlife resources)	5% reduction in feeding of wildlife, food improperly stored, and backpackers not using food storage canisters. Measured annually and evaluated using a running 5-year average.	Biological	▪ See potential management actions for this indicator in zone 1C above.
	Water Quality (reflects river health)	Anti-degradation for each segment, for fecal coliform, nutrients (total dissolved nitrogen, nitrate and total phosphorus), and petroleum hydrocarbons per sampling period. Absolute minimum, all segments: State fecal coliform standard for recreational contact at all times.	Hydrologic Processes	▪ Close sections of river temporarily or permanently. ▪ Post signs restricting access and providing water quality information. ▪ Educate users regarding impacts of activities on water quality. ▪ Restore riverbank and buffer areas to river. ▪ Limit overall number of users through reduced trailhead quotas. ▪ Reduce number of overnight visitors at High Sierra Camp. ▪ Reduce/limit stock use in certain areas.
		DIVERSE VISITOR EXPERIENCE ZONES		
2A Open Space	Occupied Parking Versus Capacity (reflects traffic congestion)	Number of vehicles in any activity area at any one time does not exceed the capacity of designated parking spaces (for visitors, transit buses and commercial tour buses). Initially measured through hourly staff observation during peak periods (will be converted to real-time automated traffic data monitoring in the future).	Biological Hydrologic Processes Cultural Recreation	▪ Educate users regarding traffic congestion ▪ Disseminate information to visitors en route to the park or within the park encouraging visitation at less crowded times and locations. ▪ Temporarily divert vehicle traffic away from areas where standard is violated (occasionally implemented in eastern Yosemite Valley). ▪ Temporarily divert visitors from the park at entrance stations during periods when standards are being violated. ▪ Improve roadway/parking system to alleviate identified congestion points. ▪ Develop consolidated parking that can be monitored more easily than the current dispersed parking in small lots and along roadsides (combined with eliminating roadside parking through design and enforcement). ▪ Disperse overflow parking to existing surplus parking areas with shuttle service (as is now done at Mariposa Grove). ▪ Disperse overflow parking to new remote parking areas with shuttle services (as proposed in the Yosemite Valley Plan). ▪ If violations are regular and frequent, implement day visitation limits, which could be accomplished through a variety of measures. ▪ Actively manage the numbers of tour buses allowed in activity areas and/or pre-scheduling of bus arrival and departures.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
DIVERSE VISITOR EXPERIENCE ZONES (continued)				
2A Open Space (continued)	Actual Number of People Recreating within the River Protection Overlay (reflects crowding)	No net increase from 2005 baseline of number of people in the River Protection Overlay at selected sites. Sampled mid-week, weekends, holiday weekends, and weeks following holidays during peak periods.	Recreation	▪ Restrict or eliminate parking. ▪ Educate visitors on effects on crowding in the River Protection Overlay. ▪ Place boulders along roadways to limit parking and access. ▪ Limit access to riverbanks except at designated areas. ▪ Restrict activities within the River Protection Overlay (fishing, picnicking, swimming, etc.). ▪ Enact seasonal restrictions on various areas of the river. ▪ Limit overall number of users through entrance station quotas.
	Number of Social Trails (reflects health of sensitive vegetation)	No net increase in number from 2004 baseline of social trails, measured on an annual basis. No social trails for wetland features.	Biological Scenic Cultural Recreation	▪ Increase education efforts about impacts of trails. ▪ Direct use to an established trail and restore site. ▪ Establish permit requirements or quotas for climbers, rafters, and other users. ▪ Eliminate access through fencing, vegetative barriers, or removal of trails or parking. ▪ Close some areas temporarily or permanently and restore trails. ▪ Allow only ranger-led programs/tours. ▪ Limit overall number of users through entrance station quotas.
	Water Quality (reflects river health)	Anti-degradation for each segment, for fecal coliform, nutrients (total dissolved nitrogen, nitrate and total phosphorus), and petroleum hydrocarbons per sampling period. Absolute minimum, all segments: State fecal coliform standard for recreational contact at all times.	Hydrologic Processes	▪ Close sections of river temporarily or permanently. ▪ Post signs restricting access and providing water quality information. ▪ Educate users regarding impacts of activities on water quality. ▪ Restore riverbank and buffer areas to river. ▪ Restrict or redistribute specific uses (rafting, swimming, etc). ▪ Limit overall number of users through entrance station quotas.
2A+ Undeveloped Open Space	Actual Number of People Recreating within the River Protection Overlay (reflects crowding)	No net increase from 2005 baseline of number of people in the River Protection Overlay at selected sites. Sampled mid-week, weekends, holiday weekends, and weeks following holidays during peak periods.	Recreation	See potential management actions for this indicator under zone 2A above.
	Number of Social Trails (reflects health of sensitive vegetation)	No net increase in number from 2004 baseline of social trails, measured on an annual basis. No social trails for wetland features.	Biological Scenic Cultural Recreation	See potential management actions for this indicator under zone 2A above.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
DIVERSE VISITOR EXPERIENCE ZONES (continued)				
2B Discovery	Occupied Parking Versus Capacity (reflects traffic congestion)	Number of vehicles in any activity area at any one time does not exceed the capacity of designated parking spaces (for visitors, transit buses and commercial tour buses). Initially measured through hourly staff observation during peak periods (will be converted to real-time automated traffic data monitoring in the future).	Biological Hydrologic Processes Cultural Recreation	See potential management actions for this indicator under zone 2A above.
	Actual Number of People Recreating within the River Protection Overlay (reflects crowding)	No net increase from 2005 baseline of number of people in the River Protection Overlay at selected sites. Sampled mid-week, weekends, holiday weekends, and weeks following holidays during peak periods.	Recreation	See potential management actions for this indicator under zone 2A above.
	Extent/Magnitude of Three Traditionally Used Plant Species (reflects health of traditional resources)	No alteration of characteristics of the traditional cultural resources that make them eligible for listing on the National Register of Historic Places. Evaluated on an annual basis.	Cultural Biological	▪ Educate visitors about the importance of traditional plant use. ▪ Redirect use away from sites by relocating parking and trails. ▪ Use vegetative barriers, fencing, or boulders to limit access to areas. ▪ Close access to and restore impacted areas. ▪ Work with Tribal groups to enhance native plants. ▪ Limit overall number of users through entrance station quotas.
	Length of Social Trails in Meadows (reflects health of sensitive vegetation)	No net increase in length of social trails from 2004 baseline, measured on an annual basis.	Biological Scenic Cultural Recreation	▪ Change infrastructure (e.g., build observation platform or boardwalk). ▪ Redirect use through signs or barriers. ▪ Reduce access through vegetative barriers, fencing, removal of parking, or removal of shuttle service. ▪ Increase educational efforts about impacts of trails. ▪ Limit overall number of users through entrance station quotas. ▪ Close some areas temporarily or permanently and restore trails. ▪ Allow only ranger-led programs/tours.
	Riverbank Erosion that is Accelerated or Caused by Visitor Use (reflects health of riverbank)	No net increase over 2005 baseline in linear extent of riverbank erosion that is accelerated or caused by visitor use; no riverbank erosion that exceeds Condition Class 2. Measured on an annual basis.	Biological Scenic Hydrologic Processes	▪ Increase education efforts. ▪ Place boulders along roadways. ▪ Limit access to riverbanks except at designated areas. ▪ Use vegetative barriers, fences or other barriers to limit access to riverbanks. ▪ Post signs prohibiting access. ▪ Limit rafting (limit numbers, regulate launch and take out areas). ▪ Restrict or redirect other activities on banks (fishing, etc.). ▪ Use river rangers to patrol riverbanks and educate users. ▪ Create a "River Walk" or designated trail along the river. ▪ Enact seasonal restrictions on various areas of the river. ▪ Limit overall number of users through entrance station quotas.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
DIVERSE VISITOR EXPERIENCE ZONES (continued)				
2C Day Use	Occupied Parking Versus Capacity (reflects traffic congestion)	Number of vehicles in any activity area does not exceed the capacity of designated parking spaces (for visitors, transit buses and commercial tour buses). Initially measured through hourly staff observation during peak periods (will be converted to real-time automated traffic data monitoring in the future).	Biological Hydrologic Processes Cultural Recreation	See potential management actions for this indicator under zone 2A above.
	Actual Number of People Recreating within the River Protection Overlay (reflects crowding)	No net increase from 2005 baseline of number of people in the River Protection Overlay at selected sites. Sampled mid-week, weekends, holiday weekends, and weeks following holidays during peak periods.	Recreation	See potential management actions for this indicator under zone 2A above.
	Wildlife Exposures to Human Food (reflects health of wildlife resources)	5% reduction in feeding of wildlife, food left unattended, overflowing trash cans or dumpsters, and food debris. Measured annually and evaluated using a 5-year running average.	Biological	▪ Increase educational efforts on effects of wildlife exposure to human food. ▪ Increase ranger enforcement and fining program for violations. ▪ Require bear canisters in all parking/camping areas. ▪ Add additional bear proof food lockers. ▪ Limit areas where food is allowed. ▪ Limit overall number of users through entrance station quotas.
	Proportion of Day Use Facilities Available versus Occupied (reflects crowding)	Visitors are able to find an open table 70% of the time during peak hours, June through October, at outdoor concession food service areas and park day use picnic areas. Measured per hour and per day.	Recreation Biological	▪ Provide additional picnic tables, restrooms, trash bins. ▪ Extend hours of concession operations. ▪ Where and when appropriate, use "mobile food service" carts. ▪ Limit overall number of users through entrance station quotas.
	Extent/Magnitude of Three Traditionally Used Plant Species (reflects health of traditional resources)	No alteration of characteristics of the traditional cultural resources that make them eligible for listing on the National Register of Historic Places. Measured on an annual basis.	Cultural Biological	See potential management actions for this indicator under zone 2B above.
	Length of Social Trails in Meadows (reflects health of sensitive vegetation)	No net increase in length of social trails from 2004 baseline. Measured on an annual basis.	Biological Scenic Cultural Recreation	See potential management actions for this indicator under zone 2B above.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
DIVERSE VISITOR EXPERIENCE ZONES (continued)				
2C Day Use (continued)	Riverbank Erosion that is Accelerated or Caused by Visitor Use (reflects health of riverbank)	No net increase over 2005 baseline in linear extent of riverbank erosion that is accelerated or caused by visitor use; no riverbank erosion that exceeds Condition Class 2. Measured on an annual basis.	Biological Scenic Hydrologic Processes	See potential management actions for this indicator under zone 2B above.
	Water Quality	Anti-degradation for each segment, for fecal coliform, nutrients (total dissolved nitrogen, nitrate and total phosphorus), and petroleum hydrocarbons per sampling period. Absolute minimum, all segments: State fecal coliform standard for recreational contact at all times.	Hydrologic Processes	▪ Close sections of river temporarily or permanently. ▪ Post signs restricting access and providing water quality information. ▪ Educate users regarding impacts of activities on water quality. ▪ Restore riverbank and buffer areas to river. ▪ Restrict or redistribute specific uses (rafting, swimming, etc). ▪ Eliminate use of fertilizers and sprayfields. ▪ Expand infrastructure (restrooms, etc.). ▪ Limit overall number of users through entrance station quotas. ▪ Reduce/limit stock use in certain areas.
2D Attraction	Occupied Parking versus Capacity	Number of vehicles in any activity area at any one time does not exceed the capacity of designated parking spaces (for visitors, transit buses and commercial tour buses). Initially measured through hourly staff observation during peak periods (will be converted to real-time automated traffic data monitoring in the future).	Biological Hydrologic Processes Cultural Recreation	See potential management actions for this indicator under zone 2A above.
	Actual Number of People Recreating within the River Protection Overlay	No net increase from 2005 baseline of number of people in the River Protection Overlay at selected sites. Sampled mid-week, weekends, holiday weekends, and weeks following holidays during peak periods.	Recreation	See potential management actions for this indicator under zone 2A above.
	Wildlife Exposures to Human Food	5% reduction in feeding of wildlife, food left unattended, overflowing trash cans or dumpsters, and food debris. Measured annually and evaluated using a 5-year running average.	Biological	See potential management actions for this indicator under zone 2C above.
	Proportion of Day Use Facilities Available versus Occupied	Visitors are able to find an open table 70% of the time during peak hours June, through October, at outdoor concession food service areas and park day use picnic areas. Measured per hour and per day.	Recreation Biological	See potential management actions for this indicator under zone 2C above.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
DIVERSE VISITOR EXPERIENCE ZONES (continued)				
2D Attraction (continued)	Water Quality	Anti-degradation for each segment, for fecal coliform, nutrients (total dissolved nitrogen, nitrate and total phosphorus), and petroleum hydrocarbons per sampling period. Absolute minimum, all segments: State fecal coliform standard for recreational contact at all times.	Hydrologic Processes	See potential management actions for this indicator under zone 2C above.
DEVELOPED ZONES				
3A Camping	Occupied Parking Versus Capacity	Number of vehicles in any activity area at any one time does not exceed the capacity of designated parking spaces (for visitors, transit buses and commercial tour buses). Initially measured through hourly staff observation during peak periods (will be converted to real-time automated traffic data monitoring in the future).	Biological Hydrologic Processes Cultural Recreation	See potential management actions for this indicator under zone 2A above.
	Wildlife Exposures to Human Food	5% reduction in feeding of wildlife, food left unattended, overflowing trash cans or dumpsters, and food debris. Measured annually and evaluated using a 5-year running average.	Biological	See potential management actions for this indicator under zone 2C above.
	Water Quality	Anti-degradation for each segment, for fecal coliform, nutrients (total dissolved nitrogen, nitrate and total phosphorus), and petroleum hydrocarbons per sampling period. Absolute minimum, all segments: State fecal coliform standard for recreational contact at all times.	Hydrologic Processes	See potential management actions for this indicator under zone 2C above.
3B Visitor Base and Lodging	Occupied Parking Versus Capacity	Number of vehicles in any activity area at any one time does not exceed the capacity of designated parking spaces (for visitors, transit buses and commercial tour buses). Initially measured through hourly staff observation during peak periods (will be converted to real-time automated traffic data monitoring in the future).	Biological Hydrologic Processes Cultural Recreation	See potential management actions for this indicator under zone 2A above.
	Wildlife Exposures to Human Food	5% reduction in feeding of wildlife, food left unattended, overflowing trash cans or dumpsters, and food debris. Measured annually and evaluated using a 5-year running average.	Biological	See potential management actions for this indicator under zone 2C above.

Table II-5
Yosemite's VERP Program: Indicators and Standards by Management Zone

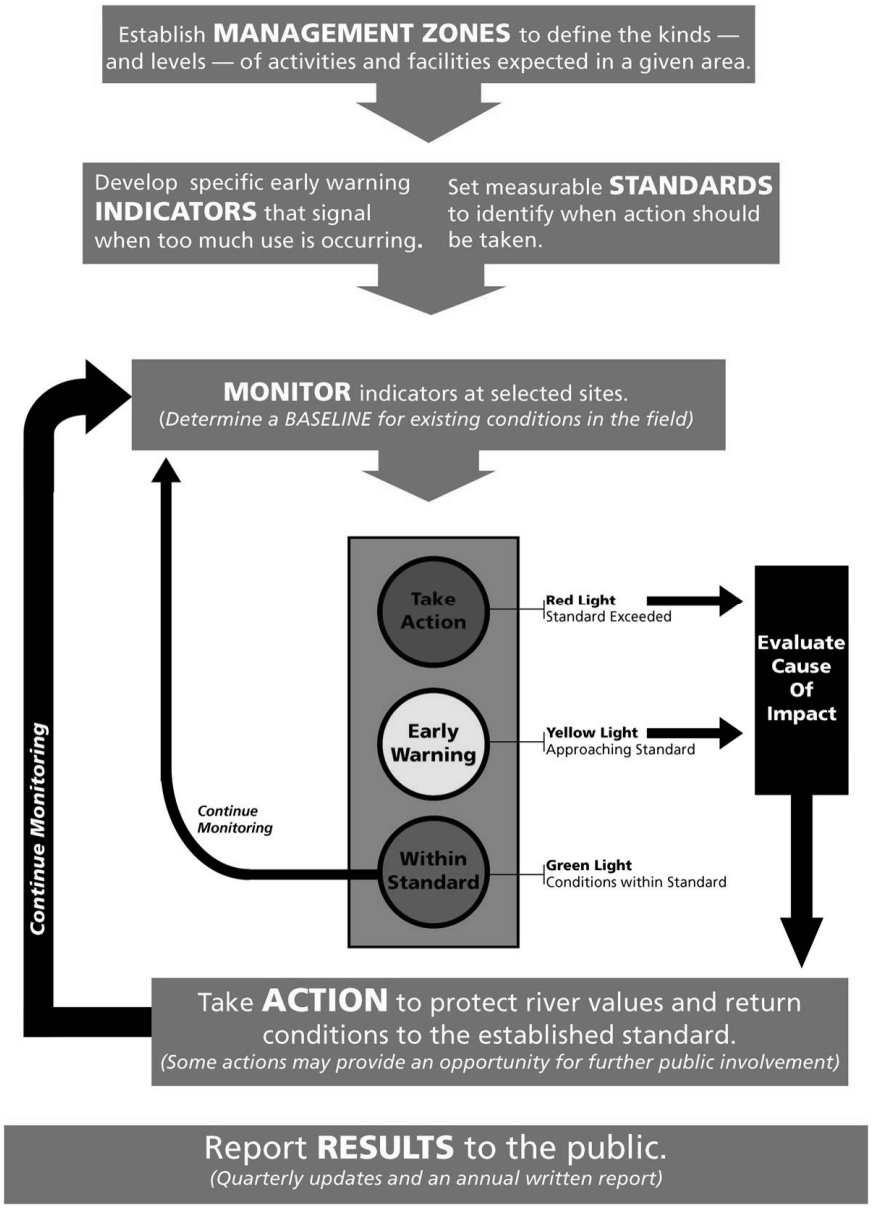
Zone	Indicator	Standard	Relation to ORV[a]	Example Management Actions[b]
		DEVELOPED ZONES (continued)		
3B Visitor Base and Lodging (continued)	Proportion of Day Use Facilities Available versus Occupied	Visitors are able to find an open table 70% of the time during peak hours, June through October, at outdoor concession food service areas and park day use picnic areas. Measured per hour and per day.	Recreation Biological	See potential management actions for this indicator under zone 2C above.
	Water Quality	Anti-degradation for each segment, for fecal coliform, nutrients (total dissolved nitrogen, nitrate and total phosphorus), and petroleum hydrocarbons per sampling period. Absolute minimum, all segments: State fecal coliform standard for recreational contact at all times.	Hydrologic Processes	See potential management actions for this indicator under zone 2C above.
3C Park Operations and Administration	Occupied Parking Versus Capacity	Number of vehicles in any activity area at any one time does not exceed the capacity of designated parking spaces (for visitors, transit buses and commercial tour buses). Initially measured through hourly staff observation during peak periods (will be converted to real-time automated traffic data monitoring in the future).	Biological Hydrologic Processes Cultural Recreation	See potential management actions for this indicator under zone 2A above.
	Wildlife Exposures to Human Food	5% reduction in feeding of wildlife, food left unattended, overflowing trash cans or dumpsters, and food debris. Measured annually and evaluated using a 5-year running average.	Biological	See potential management actions for this indicator under zone 2C above.
	Water Quality	Anti-degradation for each segment, for fecal coliform, nutrients (total dissolved nitrogen, nitrate and total phosphorus), and petroleum hydrocarbons per sampling period. Absolute minimum, all segments: State fecal coliform standard for recreational contact at all times.	Hydrologic Processes	See potential management actions for this indicator under zone 2C above.

NOTES:
a Outstandingly Remarkable Value.
b These are only a few examples of potential Management Actions. Park managers would determine the appropriate action to take based on the specific circumstances.

How VERP Works

In order to better explain how the VERP program results in the protection and enhancement of Outstandingly Remarkable Values, one existing indicator is detailed below. The following VERP process example is designed to illustrate how Yosemite's VERP program works, specifically; (1) to examine how desired conditions for management zones were established; (2) to provide rationale for why indicators were established for specific management zones and (3) to show how standards were assigned to indicators within these management zones; (4) to present the process by which park managers evaluate the data through a monitoring program, and (5) to show the process for determining the appropriate management action, if necessary. In addition to the VERP process example, figure II-7 illustrates the iterative nature of Yosemite's VERP program.

Figure II-7
VERP Framework



VERP Process Example: Length of Social Trails in Meadows (Zones 2B and 2C)

1) Desired Conditions are Established (Management Zoning)

Approved management zoning adopted in Merced River Plan was developed to protect and enhance the Outstandingly Remarkable Values within each segment of the river and prescribes certain uses and facilities that are not allowed in an area. Management zoning is a technique used by the National Park Service to classify park areas and prescribe future desired resource conditions, visitor activities, and facilities. Management zoning is defined as "*A geographical area for which management directions or prescriptions have been developed to determine what can and cannot occur in terms of resource management, visitor use, access, facilities or development, and park operations. Each zone has a unique combination of resource and social conditions, and a consistent management prescription*" (NPS 1997a).

A brief description of the Discovery (2B) and Day Use (2C) zones are provided below, however a more comprehensive discussion of these management zones are provided in the Merced River Plan. The example indicator discussed in this VERP process example will be monitored in the Discovery (2B) and/or Day Use (2C) zones. Management zones form the basis for selection and application of standards to indicators monitored within these zones.

The Discovery (2B) zone is characterized by relatively quiet natural areas where visitor encounters are low to moderate, however, during high-use periods, some concentrated use and more frequent visitor encounters can occur on trails that link destination points through the Discovery zone. This zone is managed for low tolerance of resource degradation caused by visitor use and emphasizes low-intensity visitor uses. Limits on use and facilities allow natural areas to remain relatively unimpaired when they are not close to one of the few access roads. Areas in the Discovery zone can be used by individuals or smaller organized groups, with access to these areas requiring a moderate level of physical exertion, although some locations would be served by an access road and parking turnouts. Facilities such as roads, improved trails, small turnouts, fencing of sensitive areas, bridges, utilities, and minimal restroom facilities are allowed in this zone. Areas in this zone include Stoneman, Ahwahnee, Cook's, and Sentinel Meadows.

The Day Use (2C) zone is intended to be applied to popular park destinations, where visitors could spend significant periods of time enjoying the park resources in a relatively accessible setting. Visitors can expect moderate to high numbers of encounters with other park users and crowding on certain peak days. The Day Use zone enhances opportunities for visitors to enjoy more intensive recreational activities near the Merced River, such as swimming, picnicking, and rafting. This zone is managed with moderate tolerance for resource degradation from visitor use in specified areas. Large groups can use these areas and may accesses them by automobile, shuttle bus, and bicycle, with interpretive trails or other marked trails leading to waterfalls, beaches, and scenic views. Facilities such as roads, parking areas, turnouts, shuttle bus stops, non-motorized watercraft launch and removal facilities, bridges, utilities, restrooms, fencing of sensitive areas, picnic tables, and recycling and trash receptacles are allowed in this zone. Areas in this zone include Leidig, El Capitan, and Bridalveil Meadows.

2) A Specific Indicator is Established

The length of social trails is indicative of the contiguity and ecological health of meadows and wetland areas; impacts to wildlife habitat, including special-status species; impacts to archeological sites and traditional gathering areas used by American Indian groups; and impacts to visitor experience—including nature study and photography (all recreation Outstandingly

Remarkable Values). Social trails may impact the scenic resource, scenic and social interface of river, rock, meadow, and forest; thus monitoring the length of social trails in meadows contributes to the protection and enhancement of these Outstandingly Remarkable Value.

The South Fork Merced River in Wawona. (NPS photo by Howard Weamer)

Stoneman Meadow (zone 2B) lies between Lower Pines Campground and Curry Village. As a result, many park visitors cut across Stoneman Meadow, creating a spider-like network of social trails. In 1991, park managers took action to protect the meadow while allowing for and directing visitor use by installing an elevated boardwalk. Similarly, protective boardwalks have also been placed in Sentinel Meadow and, most recently, in Cook's Meadow in 2001. Interpretive signs in these areas explain the important role of meadows and wetlands and how visitors can help by staying on the boardwalks.

The remaining Yosemite Valley meadows are adjacent to roads, and visitors routinely enter the meadows from turnouts, particularly at El Capitan Meadow where people venture into the meadow to view climbers. Social trails originate at the turnouts and radiate across the meadows. These trails are well suited for monitoring since they are readily apparent, easily measured, attributable to use, and indicative of ecological damage.

3) A Measurable Standard is Assigned to the Indicator

Yosemite VERP Program assigned a "No net increase in total length of social trails when compared with baseline" for zones 2B and 2C. Baseline was established in 2004. Baseline would be updated as restoration actions are implemented and data is re-collected to reflect restoration effort. A no net increase standard would ensure that impacts would not continue to increase and that the meadows' Outstandingly Remarkable Values would be protected. Restoration could occur in some meadows. Remediate trails would be removed from the length calculation.

4) A Monitoring Program is Initiated

Baseline conditions were determined from Global Positioning System (GPS) mapping and classification of social trails in meadows in Yosemite Valley during 2004. If conditions are within standard, subsequent monitoring will occur every 3 years.

5) If Standard is Exceeded, Management Action is Taken

If VERP monitoring indicates an increase in the number of social trails in a particular area, management actions designed to reduce social trails would be implemented. Typically, the least intrusive action would be taken first and, those actions would constitute no significant environmental impacts under NEPA. Such actions might include education or temporary closures. If subsequent monitoring shows actions taken are not achieving the desired result, more intrusive and restrictive measures would be taken. Such actions might include permanent fencing and/or boardwalks. These measures would be subject to appropriate NEPA analysis and public process.

The initial steps toward taking action would begin with determining the root cause of the impact by validating the data through additional monitoring and field inspection. Resource managers might consider some of the following questions: Are there inconsistencies in the monitoring

methodology? Is the impact caused by visitors accessing an area or is it caused by wildlife? Is there inappropriate parking or visitor access in areas adjacent to the meadow? Any information gained from this validation process would be used to further refine VERP monitoring protocols for this indicator.

Depending on the cause identified, park managers would take appropriate management actions to return conditions to, or below, its established standard. If the impact is determined to be caused by wildlife or some other natural event, flattened vegetation will generally recover completely within one year. If the problem is determined to be caused by excessive visitor use, park mangers could implement a range of management actions depending on the magnitude or severity of the problem. The problem may be adequately addressed through additional educational messages (i.e., explaining to visitors the importance of meadows and the sensitive nature of wetlands and impacts related to trampling), installation of signs or additional interpretative exhibits. If the problem is, or has the potential to become severe, management actions may require the construction of barriers to redirect or prevent visitors from entering the affected area, removing adjacent parking, or possibly constructing or formalizing trails to concentrate or redirect use, as appropriate. However, it should be noted that the steps toward taking effective action do not follow a linear progression, and multiple solutions could be implemented simultaneously to help return an area to its desired condition.

The appropriate level of environmental review and public involvement would occur prior to implementing any of the above management actions. If the management action did not require the preparation of an environmental assessment or environmental impact statement, the action would be implemented proactively. If additional environmental compliance were required, implementation would start as soon as practical after the appropriate decision document was finalized. Subsequent monitoring of the affected areas would be conducted to confirm the overall effectiveness of the management actions taken, and ensure that conditions return, to its established standard.

6) Progress is Shared with the Public

One important aspect of the VERP program is to engage the public in this ongoing process. Regular communication with the public will highlight the status and results of monitoring activities, management actions taken or considered, and ways to participate in the process. The National Park Service will also present quarterly VERP updates to the public. The VERP monitoring manual is available to the public on the park's web site. At the end of each year, an annual report that includes analysis of the previous year's VERP data sampling would be posted on the park's web site.

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